The

ILLINOIS

January, 1953

Surgical Management of Malignant Lesions of the Stomach and Colon

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Surgical Problems in the Aged

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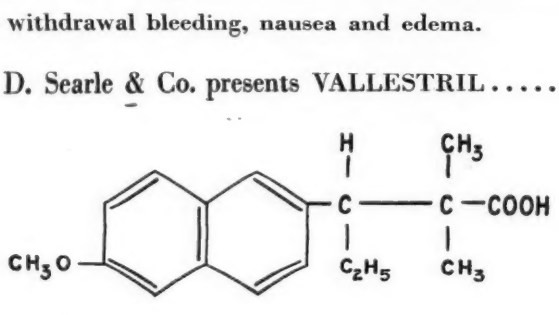

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Vol. 103, No. 1 January, 1953

THE 1953 ANNUAL DUES

An effort has been made in recent months, to inform the members of the Illinois State Medical Society why it was deemed advisable by the House of Delegates, to raise the annual dues for 1953. You will recall that for one hundred years the A.M.A. did not have annual dues, and payment of dues was only for the county and state medical societies. Then three years ago, the A.M.A. House of Delegates voted unanimously to have annual dues of $25.00 to be collected at the county or state level along with other dues. The annual dues for the Illinois State Medical Society have been much lower than those for other large state societies throughout the nation.

The financial plight of our fine medical schools has been under discussion for a number of years, and it is a well known fact that they cannot nearly pay the expenses of their operation from student income. We were informed recently that one of the larger medical schools had a deficit last year of more than nine million dollars. Everything used in our modern teaching of medicine has increased in price, and the dollar has been gradually depreciating during recent years. The American Medical Educational Foundation was organized to collect funds for the schools, and they have done a fine job, although to date, not nearly enough. The House of Delegates of the Illinois State Medical Society at its 1952 annual meeting and after much discussion, voted unanimously to increase the annual dues for 1953, $20.00 and all of this increase to go to the medical educational fund. If desired, members may designate their own alma mater to receive their donation.

The Medical Benevolence Fund has enough funds at this time to carry on its functions and the House of Delegates voted to place $2.00 from each membership in the fund, instead of $5.00 per year as has been done in recent years. With donations from the Woman's Auxiliary and from other sources, it is believed that the present surplus can be maintained, the additional amounts donated will be sufficient to carry on the fine work which has been done over a period of some 13 years. We have compared the dues of members of the Illinois State Medical Society with other professional organizations, many unions, and other groups and with the present increase in dues, the members of this Society pay far less than members of many of these societies or organizations. For 1953, in addition to the county society dues, the secretary of county medical societies will collect $40.00 for the State Society, $20.00 of which automatically goes to the Medical Educational fund, and $2.00 into the Medical Benevolence fund. Then the A.M.A. dues of $25.00 is also to be collected at the county

level, this going from the State Society to the A.M.A. No dues should be sent directly to the Medical Educational Fund or to the American Medical Association, as these sums must be sent to the office of the State Society Secretary. When checks are sent to the A.M.A., they must be returned to the State Society where the necessary entries must be made before the dues are sent to the A.M.A.

The Secretary of either the State Medical Society or the county societies can give information to members on this subject, as can likewise, the Councilors for the respective Councilor Districts over the state of Illinois.

Annual dues should be paid early in the year, thus making the work of the secretaries as well as the accounting department of the American Medical Association much easier. Likewise the medical schools need financial aid, and all funds received for them will be speedily sent to the Medical Educational Fund.

PHYSICIANS AND MARCH OF DIMES

Probably no greater example of cooperative effort has been demonstrated than by the success of the National Foundation for Infantile Paralysis. The recent reported results of use of Red Cross Gamma Globulin as a prophylactic agent for poliomyelitis is the fine example of cooperative spirit.

The public donated their blood to Red Cross and contributed liberally in the "March of Dimes." The thousands of volunteer workers helped make the entire program a success. In addition, they displayed their confidence in the workings of organized medicine in allowing their children to be subjects of these tests, knowing well some would receive Gamma Globulin and others a harmless substitute.

Physicians, health officers, and nurses cooperated to the fullest extent in the advice given patients, and of their time in making the study a success. The National Foundation expended a million dollars in proving one of the first safe and reliable methods in reducing the susceptibility and severity of the dreaded disease in an epidemic area. Much remains to be accomplished before the goal of the National Foundation is realized.

Physicians throughout the state are urged to take an active interest in the local chapter. Their cooperation and advice is essential to insure patient care. Polio, being a medical problem requires endorsement and the cooperation of medical men.

The medical profession, long known for its exhibitions of charity should continue its endorsement of the program, and encourage contributions to the "March of Dimes" which makes the research work, training of skilled help, by means of fellowships etc. Last but not least, patient care, which accounts for 74 per cent of total expenditure of the "March of Dimes" funds.

OSTEOPOROSIS

Senile osteoporosis leads to considerable pain and disability in older persons. Women are afflicted more often than men and the majority of victims are over 55 years old. Excellent results are being reported with testosterone.

Osteoporosis produces decreased bone density and results from processes that interfere with matrix formation. Causative factors include disuse, lack of stress and strain, protein deficiency, and steroid imbalance. There is mounting evidence to support the theory, however, that the chief origin of the senile type is underfunctioning of the gonadal hormone producing glands. This would explain why the condition is observed in postmenopausal women up to age 65. When the disorder occurs after this age, it is the senile variety although the two types are barely indistinguishable. On the other hand, the theory does not account for the relative infrequency of the abnormality in men, even those beyond 70 years of age. A relationship exists, however, between osteoporosis and longstanding eunuchoid males 10 or more years past puberty. In these males, the condition is indistinguishable from the senile variety.

The hormone theory is given another boost by the observation that the excretion of calcium and phosphorus in the urine is decreased when estrogens and testosterone are administered. The effects are noted within six days and reach a peak within a month. The response persists for 60 days after the drug is stopped. These findings explain the good results when testosterone is given to patients with osteoporosis.

(*Continued on page* 5)

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OSTEOPOROSIS (Continued)

Schoene[1] reported his results of four years' observation on 30 cases of senile osteoporosis in which testosterone was given intramuscularly, 25 mg., three times weekly for four weeks, then twice a week for four weeks, and finally weekly for four weeks. This was followed by a four week vacation from therapy. Pain disappeared within three weeks and there was a return of the sense of well being. Treatments lasting longer than six months rarely were needed.

Hallahan[2] was able to relieve symptoms in two cases with large injections of vitamin B^{12}. One patient had two recurrences, when the drug was stopped for two weeks and again, after a month. This author was unable to explain why the vitamin was effective.

Advanced cases of osteoporosis often require orthopedic supports for backache and deformities. To conserve the calcium content of the body the diet should exclude fats and cereals which inhibit calcium absorption. Vitamins C and D also are recommended.

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2. Hallahan, J. D., SYMPTOMATIC RELIEF OF OSTEOARTHRITIS AND OSTEOPOROSIS WITH VITAMIN B12. PRELIMINARY REPORT. Am. Practitioner & Digest of Treatment, 3:27 (Jan.) 1952.

DIABETES AND TUBERCULOSIS

For many years there has been a tradition that diabetes mellitus predisposes to tuberculosis, particularly pulmonary tuberculosis. There have been figures however which indicated that this assumption was perhaps fallacious. Wilder and Sprague* for example noted that the records of 3793 consecutive patients with diabetes at the Mayo Clinic, most of them checked by chest x rays, showed active tuberculosis in only 37, less than one per cent. The subject has recently been reviewed by Ferrara† who points out that some authorities claim that the incidence of tuberculosis in diabetics is three times as high as it is in the general population. If this is true no one has formulated a satisfactory explanation of the phenomenon. But, as William Gull once said "Savages explain, science investigates". Ferrara's figures, which are based on the records of the Uncas-on-Thames Tuberculosis Hospital, show the opposite situation to those of Wilder and Sprague, namely not the percentage of diabetics who show evidence of pulmonary tuberculosis, but the percentage of patients with pulmonary tuberculosis who show evidence of dia-

*Musser's Internal Medicine, 4th edition, p. 1201.
†New England Jour. Med. Jan. 10th, 1952.

betes. Of 3,178 patients admitted to the hospital for tuberculosis 68 or 2.1 per cent had associated diabetes mellitus. Inasmuch as 7 per cent of ordinary life insurance risks died of all forms of tuberculosis in 1951* neither the Mayo Clinic nor the life insurance figures seem to support the view that tuberculosis is unusually prevalent in diabetics.

However, Ferrara's statistics do show some important facts about tuberculosis in diabetics which should be carefully noted. In this day of new drugs for the treatment of tuberculosis it is important to know that the existence of diabetes in tuberculous patients has so far not been demonstrated to interfere with any form of antituberculous therapy. It is noted too that no significant relation was established between the degree of control of the diabetes and the course of the tuberculous infection. The fact that over two-thirds of Ferrara's series of patients with both diseases were over 40 years of age suggests the possibility that diabetes merely tends to activate latent tuberculosis, for while diabetes may occur at any age it is more prevalent in the elderly who are more likely to have inactive lung lesions. This indicates that age should not limit the obviously necessary lung x-rays which should be made periodically in all diabetics. The study also shows that in the great majority of patients with diabetes and tuberculosis the latter disease is rarely minimal but usually moderately or well-advanced. Finally, perhaps the most significant fact elicited by Ferrara's study is that in patients with concurrent diabetes and tuberculosis the prognosis of the latter disease is definitely graver than it is in the non-diabetic patient. Consequently x-ray examinations of lungs of tuberculous diabetics are indicated at least every six months and even more frequently if there are symptoms or signs suggesting the desirability of this. Needless to say all patients with a positive diagnosis of diabetes mellitus should have an x-ray of their lungs and all patients in whom a diagnosis of tuberculosis is made should have an examination of a 24 hour specimen of urine for sugar and, if indicated, a blood-sugar determination.

G.B.

*Life Insurance Fact Book, 1952, p.81.

"WAIT 'TILL MORNING!"

A plea for night and holiday service by hospital laboratories.

Dr. Frederick Stenn

Why is life less valuable on Sundays, holidays, evenings and nights than on week days between the hours of 8 AM and 5 PM? Who will say how many die needlessly on July 4th, Washington's Birthday, Labor Day, Christmas, New Years Day and the evenings preceeding them? What numbers reach their graves when they are so unfortunate to enter the hospital because of injury or disease at night time? The figures must be impressive.

If any department of the hospital is responsible for these casualties of medical neglect, that department is the clinical and x-ray laboratory, the doors of which are, for practical purpose, shut against the physician at 5 PM and on holidays.

Particularly shameful is this situation in our smaller hospitals, where the technicians on call usually live some distance away. The physician is reluctant in calling upon them for service. Only too often the technicians insist upon waiting until morning or until the holiday is over. But sickness and accident are not confined to the time when the sun shows above the horizon; sickness and accident do not respect the convenience of a hospital.

The assiduous physician, hard pressed by the labors of the day, struggles with his ailing one throughout the night. Is there a fracture? Has pneumonia developed or is it a pulmonary infarct? Is it an acute coronary thrombosis? May the coma be due to hypopotassemia? What is the blood sugar and CO_2 combining power? What are the chemical changes in the spinal fluid? Is there free gas in the abdominal cavity? Is the white blood count high? Does the patient continue to bleed within his intestine? These, and a score of other pertinent questions answered only in the x-ray and clinical laboratory, jar him with the importance of an immediate answer.

These questions must be answered promptly. Waiting may be a great virtue in medicine but in this instance, waiting is bidding welcome to an armed enemy. The gossamer of life is swept away only to quickly to wait. The Doctor tries

to do some of the laboratory work himself and finds this, and the assistance of his intern, insufficient.

"He trespasses against his duty" Edmund Burke wrote, "who sleeps upon his watch". The laboratory can no more be closed than the operating room. The technicians have no greater right to their repose than the anaesthetists. Continuous service is mandatory regardless of the sun's position in the heavens and regardless of the sacred days set aside for prayer or atonement or for celebration. The patient has a right to insist upon proper and efficient service irrespective of time. It is the technicians bounden function. It is the hospitals imperative responsibility. It is the doctors moral obligation to see that it is done!

CHICAGO!

Chicago — What have you got?
Not the light-hearted gayety of Paris?
Not the solemn and sober dignity of London?
Not the splendor and awesome ruins of Rome?
Not the financial cunning and wizzardry of New York?

Chicago, what *have* you got Only vision and tolerance as broad as the plains which surround you! Only imagination, initiative and drive so terrific that all other cities all over the world from their Dwarfism envy your Stature.

Chicago — you were spawned in the middle of the Indian Country. You grew up lustily, fighting with one hand, building with the other, building and swearing and working and laughing yourself into maturity, — always the same, your natural self, no pretense, no poise, no fear, no inhibitions — offspring of your Indian surroundings. Yet presently feeding and directing the destinies of the World!

Chicago — What have you got? Everything.

Robert S. Berghoff, M.D.

THE BENEVOLENCE FUND

Realizing that in our State there were doctors and their families, or widows of doctors, who, through no fault of their own, were in dire need of financial assistance, a Benevolence Fund was established in 1940. The management and the administration of the Fund rests upon a committee chosen by the House of Delegates. The maintenance is shared by the State Medical Society and the Woman's Auxiliary to that Society.

It is interesting to note here that in February, 1938, the State Auxiliary under the leadership of Mrs. Herbert B. Henkle, asked permission of the Council of the Illinois State Medical Society to establish this Fund, but plans had already been made for its operation, subject to House of Delegates approval.

No one of us expects to make use of this Fund. Neither did the sixty or more beneficiaries who have used it, nor the thirty (33) who are receiving help currently. A long debilitating disease or the infirmities of age, a disappointing retirement investment, living beyond normal life expectancy, inadequate reserve funds — all may conspire to upset anyone's planned financial security.

For those who are not versed with the scope of the Fund, a brief review is in order.

1. Beneficiaries: Needy doctors or their widows. Since its inception about 15% of the recipients have been doctors, the remainder their widows.

2. Maximum Benefits: Up to $50.00 per month. More is allowed in some cases where the administrators deem it necessary, subject to Council authorization.

3. Administrators: A committee elected by the House of Delegates of the State Medical Society. This committee serves without remuneration.

4. Administration: Any member of the Medical Society or its Auxiliary may report to the committee, the name of a doctor or his (her) widow (widower) stating that assistance is needed. Usually this is done by a local physician familiar with the family. The case is tactfully investigated by the Committee. An application form is filled out. All reports are confidential. The Secretary of the State Medical Society — Dr. Harold M. Camp, Monmouth, Illinois, serves on this Committee.

5. Amount in the Fund: At present, the checking account of the Fund has about $57,000.00, and there are $100,000.00 in bonds. Approximately $15,000.00 per year is being spent, now, on a pay-as-we-go basis.

6. Source of Moneys: Over the years, various amounts have been raised by the members of the Medical Society and its Auxiliary. At present, two dollars of the dues paid by each member of the Medical Society are allocated to the Fund. The maintenance of the Fund is one of the chief objectives of the Woman's Auxiliary. To date,

its members have contributed close to $30,000.00 Last year: $6,359.00; this year, it is hoped $10,000.00.

7. *Memorial Gifts:* Recently, upon the death of several Auxiliary members, their relatives and friends have sent contributions to the Fund instead of flowers to the family. Therefore, the Board of Directors of the Auxiliary voted to established within the Benevolence Fund, a *Memorial Fund* in the name of any member for whom twenty-five or more dollars were given. The first three memorials were for Mrs. Herbert B. Henkle, Mrs. Harry J. Dooley and Mrs. Solomon Jones — all loyal members.

These gifts are equally fitting in memory of physicians or others. All such contributions are promptly acknowledged and suitable notification sent to the family of the deceased. These contributions augment the income of the Fund. Many donors receive a deep satisfaction in giving to a *useful* and *living memorial.*

8. *Honor Gifts:* Contributions may also be given to honor men or women for outstanding achievements or service to the Society or profession.

The Benevolence Fund is a growing, going concern which meets a real need. Illinois is one of the few forward looking states to have such a Fund. To quote Dr. Harold Camp, it often "means the difference between enough and not enough"[1] for a doctor or his widow. It is a "cohesive force within organized medicine during this time of stress. It is a non-governmental cushion against disaster."[2]

There is an abiding sense of joy in knowing that as a team a doctor and his wife cheerfully have given — and will continue to give — to the Benevolence Fund. It is a Fund which helps soften the shock of financial worry for a team like us — or perhaps only one member of it.

By Mrs. George W. Koivun,
Benevolence Fund Chairman
for the Woman's Auxiliary
to the Illinois State Medical
Society.

(1) The Benevolence Fund, Its First Decade.
(2) by Harold M. Camp, M.D., Abst. of address before the Woman's Auxiliary of the Chicago Medical Society, Chicago 2/14/50.

IQ IN CEREBRAL PALSY

Dr. Winthrop Phelps has estimated that 30 per cent of the cerebral palsied are mentally defective, as a direct result of the brain damage, and that the remaining 70 per cent are normal "in the sense that these individuals show the normal spread of the population seen at large." This estimate has been widely quoted and almost as widely misunderstood. It frequently has been interpreted to mean that 70 per cent of the cerebral palsied have normal or superior intelligence. If intelligence is normally distributed among 70 per cent of the cerebral palsied population, one would expect an additional 2 per cent of the total group to be mentally defective, or 32 per cent in all; approximately 15 per cent would be expected to fall into the dull range from 70-89; while approximately 53 per cent would be expected to have average intelligence or better. *Ann Heilman, A New Interpretation Of Research Studies. The Crippled Child, Aug. 1952.*

MEDICAL ECONOMICS

The Medical Economics Committee. John R. Wolff, Chairman, Walter C. Bornemeier, Edward W. Cannady, Roland R. Cross, Jr., E. F. Dietrich, W. W. Fullerton, Edwin F. Hirsch, Frederic T. Jung, W. R. Malony, Caesar Portes, William Requarth, Frederick W. Slobe.

Archives in the Catacombs

Walter C. Bornemeier, M.D.

The medical profession and allied professions are always on the alert for ways and means to reduce the cost of medical care without, of course, reducing its quality. The price per patient for the average office or home visit is not much higher than it was twenty years ago. The doctor's income, in the main, has risen because of the possibility of seeing many more people than was possible in the days of pneumonia, diphtheria, scarlet fever, muddy roads and home deliveries. Therefore economies in physicians' charges are difficult or impossible to effect, so we must look elsewhere if any lessened cost is to be attained. The greatest increase in the portion of the medical care dollar has been taken by the hospital. Our friends in the labor movements admit freely that *labor* in hospitals is responsible for much of this increase. They are not interested in economies at the expense of labor. *Drugs* may be higher in price, but they are for the most part so effective in comparison to twenty years ago that they could cost twice as much and still be economical, judged by their ability to reduce hospital stay.

Food prices have increased and the employment of skillful dietitians adds to the cost. The benefits, however, exceed the disadvantages so it would be difficult to effect a reduction here.

Nurses, anesthetists, laboratory technicians, residents and interns are certainly not overpaid, and a few of them probably could use more money. Where then in a hospital can costs be cut? The business office that handles bills and all the necessary reports for the revenue department is getting bigger right along, but economies there mean trouble or loss of income. The purchasing department should be earning its keep. The Superintendent of Nurses smiles and says good morning — if she did nothing else all day, she could stay. So far we haven't saved a nickel.

We go into the record room. Four moderately well paid people are busy — filing, cross-filing, cataloguing chart after chart. It requires the full time of one clerk to sort out the incomplete or unsigned pages and file them so the doctor or resident guilty of negligence can have access to them when he appears, either voluntarily or when threatened with loss of hospital privileges. We find in the next room a tremendous project of microfilming of records. We pick up a record and find that the resident who took care of Job hasn't a progress note the day after the boils were

lanced. This record must be kept in a separate file until completed.

We asked two questions: (1) Why all the extensive filing of all records, the cross indexing by diseases and (2) How much does this add to the cost per patient. The answer to these questions is about the only thing not recorded in the record room.

Quick calculation reveals that the salaries of the people working in the record room for a hospital with 8,000 patients a year is about $12,000. That figures $1.50 per person or $750,000 for the half million patients in general hospitals each year in Illinois. How much does it cost to produce the record? It probably takes three times as long to produce the record as it does to file it, maybe it takes ten times as long. Using the lower figure, because we wouldn't, of course, eliminate the essentials of the record, we could save another $4.50 per patient or $2,250,000. So far that's three million annually for Illinois.

What does it cost to store such extensive records, or microfilm and store them? No one knows, but storage is apparently more costly than microfilming and microfilming costs plenty, a conservative estimate is $500 for each year of record.

Now we must go back to one of the original questions. Why keep such extensive records? I know it's "required," but we still may ask why. The answer obviously must be (1) to protect the patient; (2) to protect the hospital; (3) to protect the doctor; (4) to provide material for postgraduate medical education. Certainly the average patient could leave the hospital and satisfy points 1, 2 and 3 with essential information on a four by six card, filed alphabetically. Apparently then the extensive and costly portion of this effort is that used to satisfy point 4.

Now that we have some sort of an answer to the why and how much of keeping records, let's ask one more question. Is it the function of the hospital to provide a source of postgraduate information and should this be a legitimate medical care cost of the hospitalized patient? Surely some provision must be made for source material. Apparently most of it, at present, is *buried forever* at a cost of three million dollars plus storage each year for the state of Illinois. Certainly a good cross-section of information could be obtained for a fraction of the present cost by designating about six centers, one with each medical school and one at Cook County Hospital. Let them turn over their records, after first making a short abstract to provide protection for patient, doctor and hospital, to a central agency which could then cross index and file source material. The cost of this should be charged to postgraduate medical education.

Thus all other general hospitals would be relieved from extensive recording and filing of all except that information necessary to the immediate care of the patient. The doctor and nurse of course make and keep an accurate account of the patient's illness. This could be abstracted and filed very simply to provide a permanent record. All hospital charts would then be discarded except those where litigation seems likely.

Thus, from the standpoint of the patient, a very satisfactory record could be produced and stored at less cost. Certainly the care of the sick rather than the production of the record should be the primary duty of the physician and nurse, and data intended primarily for education should not be produced and then buried forever at the expense of the hospitalized patient.

CORRESPONDENCE

CLINICS FOR CRIPPLED CHILDREN LISTED FOR FEBRUARY

Twenty clinics for Illinois' physically handicapped children have been scheduled for next month by the University of Illinois Division of Services for Crippled Children. The Division will conduct 15 general clinics providing diagnostic orthopedic, pediatric, speech and hearing examinations along with medical social and nursing services. There will be 4 special clinics for children with rheumatic fever and 1 for cerebral palsied children.

Clinics are held by the Division in cooperation with local medical and health organizations, both public and private. Clinicians are selected among private physicians who are certified Board members. Any private physician may refer or bring to a convenient clinic any child or children for whom he may want examination or may want to receive consultative services.

The February clinics are:

February 4 — Hinsdale, Hinsdale Sanitarium

February 5 — Litchfield, St. Francis Hospital

February 10 — East St. Louis, Christian Welfare Hospital

February 10 — Peoria, St. Francis Hospital

February 10 — Vandalia, American Legion Home

February 11 — Elgin, Sherman Hospital

February 12 — Elmhurst (Rheumatic Fever), Memorial Hospital of DuPage County

February 12 — Springfield, St. John's Hospital

February 12 — Tuscola, Moose Hall

February 13 — Chicago Heights (Rheumatic Fever), St. James Hospital

February 17 — Jacksonville, Passavant Hospital

February 18 — Chicago Heights, St. James Hospital

February 19 — Anna, New City Hospital

February 19 — Rockford, St. Anthony's Hospital

February 24 — Effingham (Rheumatic Fever), Douglas Township Building

February 24 — Peoria, St. Francis Hospital

February 25 — Carrollton, Grade School

February 25 — Springfield (Cerebral Palsy), Memorial Hospital

February 26 — Bloomington, St. Joseph's Hospital

February 27 — Chicago Heights (Rheumatic Fever), St. James Hospital

In carrying on its program the Division works cooperatively with local medical societies, hospitals, the Illinois Children's Hospital-School, civic and fraternal clubs, visiting nurse associations, local social and welfare agencies, local

chapters of the National Foundation for Infantile Paralysis and other interested groups.

In all cases, the work of the Division is intended to extend and supplement — not supplant — activities of other agencies, either public or private, state or local, carried on in behalf of crippled children.

The Division of Services for Crippled Children is the official state agency established to provide medical, surgical, corrective and other services and facilities for diagnosis, hospitalization, and after-care for children who are crippled or who are suffering from conditions which may lead to crippling.

"HEART DISEASE IN CHILDREN"

The American Heart Association and its affiliated Heart Associations throughout the country have begun distribution of a new booklet, "Heart Disease in Children."

The booklet is intended for parents, teachers, and all others concerned with the problems of child health and child care. It is recommended to physicians to use with parents of patients.

This booklet presents an up-to-date summary of the information now available on the prevention and treatment of rheumatic fever, the treatment of rheumatic heart disease, and the correction of congenital heart defects.

The booklet may be obtained from Illinois Heart Association, 526 South Seventh Street, Springfield, or from any of the county chapters of the state association. Requests from Cook, DuPage and southern half of Lake County should be directed to the Chicago Heart Association, 69 West Washington Street, Chicago.

I.M.A. CERTIFICATES

I have a piece of news which might be of interest for your next issue of Illinois Medical Journal. Being a member of the Industrial Medical Association (formerly the American Assn. of Industrial Physicians and Surg.), I contacted Dr. Edward C. Holmblad of Chicago, managing director of I.M.A. and submitted a suggestion that all active members of this organization be issued certificates of membership suitable for framing.

I have a letter before me from Dr. Holmblad informing me that my suggestion was presented to the Executive Committee and Board of Directors, and on October 19th the Board of Directors voted to supply such certificates to the active members of the Association. The certificates are now being made up and as soon as the format is approved by the Executive Committee they will be ordered. It is planned to send these certificates to members at the same time as the 1953 membership cards are mailed. I understand that it will be a very neat certificate suitable for framing. The above action will affect members in all states in U.S., Hawaii, Canada, Argentina, Brazil, and Mexico.

Many of our I.M.A members practice in Illinois and I am certain that they will be pleased to learn of our efforts in helping to obtain these certificates.

Jacob Chalfin, M.D.

JC/ipc

OBSTETRICIANS NAME CARTER PRESIDENT-ELECT; INSTALL KIMBROUGH PRESIDENT

Chicago, Dec. 16 — Bayard Carter, M.D., Durham, No. Car., was chosen president-elect of the American Academy of Obstetrics and Gynecology today during its three-day session here. He will take office next December in Cincinnati.

Robert A. Kimbrough, Jr., M.D., Philadelphia, Pa., who was president-elect last year, was installed as the new president.

Carter and other officers who will work with Kimbrough were elected at the business session this morning. The new secretary will be C. Paul Hodgkinson, M.D., Detroit, Mich.; assistant secretary will be Charles D. Kimball, M.D., Seattle; and the new second vice-president will be Joe Vincent Meigs, M.D., Boston.

Other officers re-elected were Howard Stearns, M.D., Portland, Ore., as first vice-president; and Herbert E. Schmitz, M.D., Chicago as treasurer.

Five district officers also were elected: John B. Montgomery, M.D., Philadelphia, and John I. Brewer, M.D., Chicago, as District Chairmen; and vice-chairmen Duncan E. Reid, M.D., Boston; Frank R. Lock, M.D., Winston-Salem, N.C.; and Willis E. Brown, M.D., Little Rock, Ark.

ELECTROCARDIOGRAPHIC INTERPRETATION

A course in Electrocardiographic Interpretation for *graduate physicians* will be given at the Michael Reese Hospital by Louis N. Katz, M.D., (Director of the Cardiovascular Department, Medical Research Institute) and associates. The class will meet each Wednesday from 7:00 to 9:00 PM for twelve weeks, beginning February 11.

Further information and a copy of the lecture schedule may be obtained upon application to Mrs. Rivian H. Lewin, Administrative Secretary, Cardiovascular Department, Medical Research Institute, Michael Reese Hospital, Chicago 16, Illinois.

CHICAGO SOCIETY OF PHYSICAL MEDICINE AND REHABILITATION

Meeting of the Chicago Society of PM&R.
Date: January 28, 1953
6:15 P.M. Dinner -- American Medical Assn. Bldg., 5th floor. 535 N. Dearborn St., Chicago 10.
Business Meeting immediately following the dinner.
SCIENTIFIC SESSION 8:00 P.M.
Place: American Medical Assn. Bldg., 9th floor Auditorium 535 N. Dearborn St., Chicago 10.
TOPICS: "The Council on Physical Medicine and Rehabilitation" by Dr. Ralph DeForest, Sec'y., Council PM&R.
"Demonstration of Some Physical Principles Used in Medical Apparatus"
by Mr. Howard Carter, Director
Bio-Physical Investigation, Council PM&R.
"The Physical Laboratory of the Council of PM&R" by Dr. Frederick Jung, Director, Physical Laboratory.

Joseph Koczur, M.D.
Chairman, Committee on Education and Publicity

THE COOK COUNTY HOSPITAL DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Weekly
PATHOLOGICAL CONFERENCE
Every Wednesday — 11:00 AM County Morgue Amphitheater

An interesting case with presentation of pathological material at each session. Physicians may procure information by writing or calling the Medical Director.

CARCINOMA AND RECTAL POLYPS

Twenty-seven patients having carcinoma in rectal polyp have been followed for 2 to 10 years. All patients were treated by local incision, coagulation, or radon seed implantation, or by combinations with the latter. Sixteen lesions proved to be noninvasive carcinoma and 11 were invasive. The invasive group did not have radical surgery because of advanced age or infirmity. The incidence of carcinoma arising in polyp was found to be most frequent in the sixth and seventh decade of life, with the average age being 60.2 years. It is significant that no person in this series has died of recurrence or metastasis from the original tumor and that the deaths have been due to another primary lesion located above the rectum, other malignancies, or to unrelated conditions. Of the 27 reported cases, 2 have succumbed to undetected primary carcinomas of the colon above, while 2 others have recently returned for the removal of carcinomas located in the sigmoid colon. *Rupert B. Turnbull, Jr. and Edwin R. Fisher, Carcinoma in Rectal Polyp; Follow-Up Observations On 27 patients. Postgrad. Med., Oct. 1952.*

ORIGINAL ARTICLES

Modern Trends in the Surgical Management of Malignant Lesions of the Stomach and Colon

Claude J. Hunt, M.D.
Kansas City, Missouri

I wish to present here some controversial concepts of potential malignant and malignant lesions of the stomach and to discuss the modern trends in the surgical management of malignant lesions of both the stomach and colon. I shall present a personal approach to various aspects of the surgery of both of these structures.

Gastric Ulcer.—The treatment of gastric ulcer is a controversial subject. Since there is no positive way to determine the true nature of a gastric ulcerative lesion we believe that all of these ulcers should be considered malignant until proven otherwise.

The character of the lesion can not be determined by medical measures alone, as many early malignant ulcerative lesions will respond for a period of time to medical management. This probably is related to the recession of the infection and the inflammatory reaction that is often associated with early ulcerated malignancy. This acute reaction may result from the corrosive action of the free acid that is so often present. Medical treatment neutralizes the acidity and a brief response is experienced.

Grimes and Bell[1] report that free gastric acid is present in these ulcerative malignant lesions in about 75 percent of cases and conversely free acid may be absent in 20-25 percent of the benign ulcerative lesions. Therefore, the absence or presence of free gastric acid is of little value in making a differential diagnosis.

The x-ray diagnosis may be unreliable as to the true nature of the lesion.

The diameter of the ulcer by x-ray studies offers no positive indication as to the nature of

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Oration in Surgery. Presented at 112th Annual Meeting Illinois State Medical Society, Chicago, May 15, 1952.

the lesion. Grimes and Bell[1] report 17 of 24 malignant ulcers, or 71 percent, had a diameter of 3.0 cm or less, while 74 of 99 benign ulcers, or 75 percent, were 3.0 cm or less.

We believe that all ulcerative lesions of the stomach are potentially surgical and at most, only a very brief trial by medical management should be practiced.

If then there is a favorable response, frequent radiological observation should be made to evaluate the result. The incidence of diagnostic error is fully 10 percent while the operative mortality is 1 percent or less. There are few complications and a minimal morbidity following the resection of a gastric ulcer, therefore, we believe great responsibility rests upon the physician who elects medical rather than surgical management for the patient. Unfortunately, many may respond satisfactorily for a time, only to find in 3 to 6 months that the possibility of a cure has passed. It can not be overlooked that ulcer obliteration may be by proliferation of malignant cells and not by fibrous tissue. Ulcers may heal with microscopic foci of malignant cells enclosed within. The x-ray does not differentiate the type of healing that occurs.

Gastric Cancer.—The survival rate of gastric cancer after resection has improved little in recent years. The symptoms are vague, the patient presents himself late for diagnosis and the physician too often has a defeatest attitude toward operative interference. A similar attitude is unusual in other forms of disease even though the prognosis is no more promising.

According to Pack and McNeer[2] these malignant lesions are surgically removable in only about 35 or 40 percent, despite the fact that improved surgical techniques permit removal of lesions that were formerly considered unresectable.

The extension of the scope of surgery often includes resecting segments of the colon, mesocolon and large portions of the pancreas. Such procedures until recently were considered impossible. It is gratifying in many instances to observe extensions of life following these extensive procedures. We have on several occasions extended the scope of resection to include one or more of these structures and have seen results up to 5 years or more in a few instances. Certainly this is a procedure of merit when contrasted with futile and frustrated results from palliative measures.

Many surgical leaders[3] now advocate total gastrectomy for all resectable malignant lesions of the stomach, regardless of their location. This radical procedure is directed at removing more gland bearing tissue and is now being performed with a progressively reduced mortality rate. Mortality rates are determined largely by the technical skill and the surgical judgment of the surgeon.

The mortality of total gastrectomy would be greatly reduced from its present rate if performed for those lesions in the distal part of the stomach. This may in some instances be the factor in the reported reduced mortality for total gastrectomy.

There are many undesirable postoperative features that are associated with total gastrectomy. These are frequently related to malnutrition, *inanition, secondary anemia* and reflux esophagitis. These symptoms may be so pronounced *that they may be considered a serious objection* to total gastrectomy.

It is yet to be proven that total gastrectomy will materially increase the five year survival rate. When one considers the operative mortality and the post operative morbidity, the routing procedure may be a high price to pay for the questionable increase in life extension of the patient.

For lesions low in the stomach without glandular extension along the gastrohepatic omentum a partial gastrectomy is probably the procedure *of choice.*

If the gastrohepatic omentum or the celiac glands are involved, a *total gastrectomy will* not result in a cure but may afford palliative relief for an indefinite time.

Total gastrectomy is indicated for the linitis plastica type of carcinoma and for lesions in the *upper segment of the stomach.*

Total gastrectomy is best reserved for those lesions in which it appears—*that is the only* way in which all the visible disease can be removed.

Two factors are paramount to consider. The increased number of cured patients and a morbidity compatable with a comfortable life.

Surgical Procedures.—The standard type of esophago-jejunostomy with entero entero-anastomosis does not afford a large capacity for food

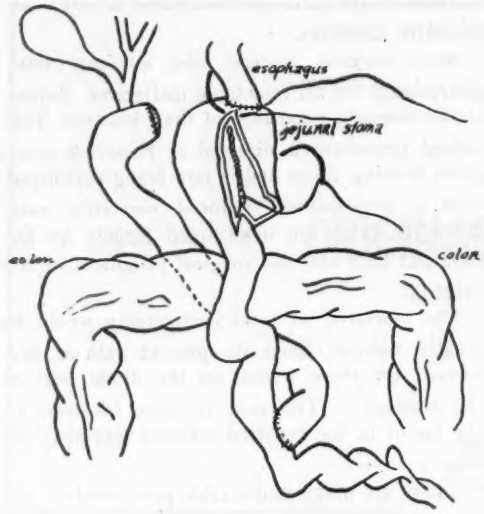

Figure 1. The jejunum has been divided about 12 inches distal to ligament of Treitz and a pouch is being constructed by joining the sides of a loop in the distal limb which has been anastomosed to the esophagus. The proximal end of the divided jejunum has been anastomosed to the side of the distal limb in a Roux-en-Y manner.

intake and does not entirely divert the duodenal contents through the stoma between the proximal and distal limbs of the jejunum. A reflux esophagitis frequently results, which causes discomfort and may promote stenosis of the esophago-jejunal anastomosis.

Consequently several attempts have been made to overcome the undesirable features of total gastrectomy.

Efforts have been directed at diverting the duodenal contents by a Roux-y procedure to prevent reflux esophagitis.

Various segments of the intestinal tract have been transplanted to substitute for the removed stomach. The intent has been to maintain the normal flow of food contents by way of the duodenum and to provide a pouch for greater food intake.

We have attempted to form a food pouch from a segment of the jejunum and have diverted the duodenal contents through a Roux-y anastomosis of the divided segments of the jejunum. This will be described later.

A brief review of the development and periodic changes in the technic of total gastrectomy are recounted.

Connor[4] in 1884, probably performed the first total gastrectomy.

Hoffman[5] in 1922, in an attempt to overcome some of the undesirable results of total gastrectomy, joined the two limbs of the jejunal loop to divert the duodenal contents and prevent reflux esophagitis.

This procedure was more extended in 1950 by Steinberg[6] and he described this wide anastomotic stoma between the proximal and distal limb of the jejunum as a pantaloon anastomosis.

Orr[7] in 1917 utilized the Roux-en-y principle to prevent reflux esophagitis, the distal limb of the Y being anastomosed to the esophagus in an end to side manner. This diverts the duodenal contents but does not provide any facility for increased food intake.

Lee[8] in 1951 substituted the right colon and a small segment of the terminal ileum for the removed stomach, anastomosing the terminal ileum to the esophagus and the colon to the duodenum and restoring intestinal continuity by an ileo transverse colostomy. This affords an adequate food pouch and the ileo cecal valve prevents reflux of duodenal contents into the esophagus.

Lee reports the procedures on sixteen dogs

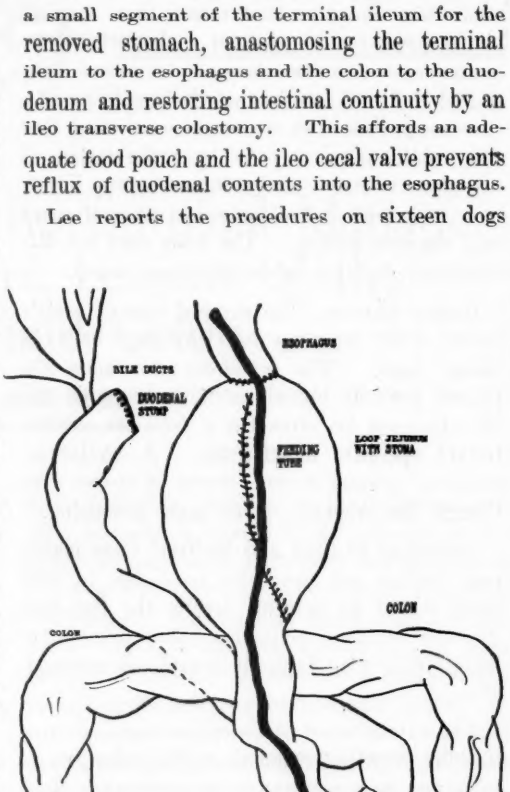

Figure 2. The completed operation showing the jejunal pouch anastomosed to the esophagus anterior to colon. Tube in place to below Roux-y for feeding by Murphy drip.

without any long time survival. The operation was reported successfully accomplished in one patient.

Hunnicut[9] in 1951 at the Western Surgical Association reported the successful use of this procedure in three patients.

State, Barclay and Kelly[10] in 1951 replaced the removed stomach by a segment of the transverse colon, in two patients. This transplanted segment of transverse colon presents the problem of reverse peristalysis which is reported by the authors as being an asset, as it prevents the passage of food too rapidly into the duodenum.

We[11] have attempted to overcome the undesirable features of total gastrectomy by employing the Roux-en-y procedure with the upper jejunum and at the same time constructing a food pouch out of either the proximal or distal segment of the jejunum.

Likewise, we[11] have replaced the stomach by a jejunal pouch made by doubling back on itself an end of the jejunal segment and making a stoma between the two parallel bowel limbs. This in turn is anastomosed to the esophagus and the duodenum. The proximal and distal jejunum after the segment is removed is reunited by end to end anastomosis. This makes a large food pouch and maintains the esophago-duodenal relationship through the transplanted jejunal segment.

Technique Of Operations.—After the stomach, great omentum and spleen have been freed of attachments and the duodenal stump closed, the jejunum is divided between clamps about 12-14 inches below the ligament of Treitz. The distal limb of the jejunum is brought up anterior to the colon and the end is doubled back upon itself in a side to side manner for about 6-7 inches. The sides of these loops are sutured together and an anastomosis with a full length stoma is made with the transected end of the jejunum being incorporated in the anastomosis, as shown in Fig. 1 and Fig. 2. This forms a large pouch which is then anastomosed to the esophagus by interrupted silk suture and continuous oo chronic catgut. The placing of the posterior rows of sutures is facilitated by traction on the attached stomach. After the posterior rows of sutures are placed, the stomach is excised above the cardia and the anterior rows of sutures are placed.

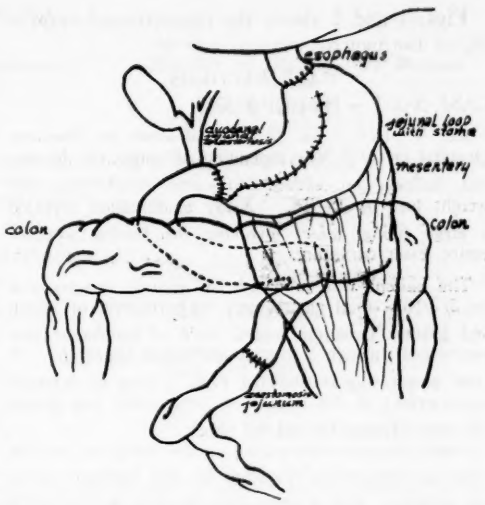

Figure 3. Shows the construction of a pouch from an isolated loop of jejunum which has been anastomosed to the esophagus and the duodenum.

The anastomosed pouch is further supported by sutures to the diaphragm and surrounding peritoneum to relieve tension.

The proximal jejunum is then anastomosed to the side of the distal jejunum well below the pouch. Fig. 2 shows the closed pouch anastomosed to the esophagus and the end to side anastomosis of jejunum to jejunum.

A Levin tube which has been in the esophagus is passed down through the pouch well down into the jejunum below the Roux-en-Y anastomosis and is useful as a means of administering fluid and feedings by the Murphy drip, in the postoperative period.

This procedure of using the distal segment of the jejunum for the food pouch diverts the duodenal contents to the jejunum below the pouch and prevents reflux esophagitis.

We have formed a food pouch to replace the stomach similar to the one described above by using an isolated loop of jejunum with its mesenteric attachment maintained. Then the pouch is anastomosed to the esophagus and the end of the jejunum to the duodenum. The jejunum from which the isolated segment was removed is united by an end to end anastomosis, illustrated in Fig. 3. This appears to be a feasible way of substituting for the stomach a food pouch made from the jejunum that more closely approximates a normal anatomic relationship.

Figs. 4 and 5 shows the capacity and emptying of the pouch.

CASE RECORDS

CASE NO. 1 — Hospital #55719

Mr. T. DeL., age 53, was admitted to Research Hospital on 2/18/50 complaining of epigastric distress and fullness on eating, difficulty swallowing and weight loss of 15 lbs. X-ray examination revealed a large filling defect involving the fundus and the entire lesser curvature.

The patient was prepared for gastric surgery and on 2/2/50 a total gastrectomy with removal of spleen and greater omentum and 3 cm's of esophagus was performed through a thoraco-abdominal approach. A food pouch was constructed from a loop of jejunum as described in the text. A Levin tube was passed into the jejunum beyond the pouch.

Tube feedings were started on the third day and the tube was removed on the tenth day and feedings started by mouth. The patient had an easy postoperative course and was dismissed from the hospital on 3/13/50.

The pathologist reported a Grade 3 adenocarcinoma of stomach involving lower portion of esophagus and the upper half of stomach with metastases to all nodes. The patient gained 9 lbs after operation, was holding down his former job and was eating 3 normal meals daily. On some special occasion recently, the patient drank 2 bottles of beer, followed it with a t-bone steak, french fried potatoes, a toss salad and dessert. This condition of apparent good health continued without distress or any evidence of an esophagitis until October 1951. He gradually developed adominal distention and a progressive anuria. He died November 12, 1951 from uremia and colon obstruction due to peritoneal pelvic metastasis. Autopsy revealed a large uninvolved jejunal pouch — a patent esophageal stoma and abdominal pelvic metastasis.

CASE NO. 2 — Hospital #60056

Mr. W. R., age 75, was sent to Research Hospital on 9/12/50 with a diagnosis of carcinoma of the stomach. X-ray examination showed a large lesion involving the fundus and the lesser curvature extending up to the cardia.

On 9/16/50 after adequate preparation, a total gastrectomy with removal of the spleen and greater omentum was done through an upper left rectus approach. The glands around the celiac axis were removed and a jejunal food pouch was constructed.

Tube feedings were started on the 3rd day and on the 9th day, food was given by mouth. The patient had a satisfactory postoperative course and was dismissed from the hospital on 11/18/50 after a convalescent stay of 3 weeks. The pathological report was Grade 4 carcinoma involving entire stomach and adjacent glands.

Figure 4 — Case 1. This shows the capacity and appearance of the jejunal food pouch three weeks after surgery.

Figure 5 — Case 2. The capacity and emptying of the food pouch as visualized three weeks after operation.

CASE RECORD

Case Initials	Age	(Research) Hosp. No.	Date Oper.	Path Report	Complications	Operative Mortality	Duration of Life	Deceased
Mr. T.D.	53	55719	2/22/50	Grade 3 adeno carcinoma	None	None	20 months and 18 days	11/12/51
Mr. W.R.	75	60056	9/16/50	Grade 4 scirrhous ca	None	None	17 months 12 days	2/28/52
Mrs. M.M.	57	63776	3/17/51	Grade 3 adeno carcinoma	Insolvent transverse colon necessitating resection and later cecostomy. Cecostomy closed later.	None	13 months alive and in good health	
Mr. W.K.	74	65841	3/7/51	Grade 3 adeno carcinoma	None	None	10 months — Alive	
Mr. A.R.	78	66055	6/21/51	Grade 3 adeno carcinoma	None	None	10 months. Alive	
		(Wheatley)						
Mr. S.T.	65	25034	7/13/51	Grade 3 adeno carcinoma	None	None	9 months. Alive	
Miss E.G.	65	68849	10/22/51	Grade 3 adeno carcinoma	Small bowel obstruction. Operative release.		1 month 22 days	12/14/51 Coronary Thrombosis

Case I — Approach was through a thoraco abdominal incision.

Case III — A segment of the transverse colon was resected along with the stomach. Continuity was re-established by end to end anastomosis. Cecal distention developed. Cecostomy was done on the third P. O. day to prevent possible perforation of the suture line. Cecostomy subsequently was closed.

Case VII — Postoperatively small bowel obstruction developed. This was released surgically. Both operations done by Dr. W. W. Cummins of our group.

NOTE: All patients on unrestricted diet. Gain in weight 5/12 lbs. after operation.

On 11/10/51, (11 months after surgery) patient reported that he was eating 3 normal meals a day with nourishment in midafternoon and was feeling fine. He is about as active as before surgery and recently took part in his State Fair. He has had no epigastric distress or regurgitation. Deceased February 28, 1952, intestinal hemorrhage. No autopsy.

CASE NO. 3 — Hospital #63776

Mrs. M.M., age 57, was admitted to Research Hospital on 3/4/51 with diagnosis of cancer of the stomach. Patient had much gastric distress and had lost 25 pounds weight. X-ray examination revealed an extensive lesion of the pars media and the lesser curvature of the stomach.

At operation 3/7/51, an extensive cancer of stomach with involvement of transverse colon mesentery and the colon by continuity were found. A total gastrectomy with removal of the spleen, adjacent nodes and the segment of involved transverse colon and its mesentery were done. A jejunal food pouch as described was constructed and an end to end anastomosis of the transverse colon was accomplished.

Tube feedings were continued until the 9th day. Because of an alarming distention of the cecum, a cecostomy was done on the 3rd day. The patient had a very smooth postoperative course and was dismissed on 4/1/51.

The pathologist reported a Grade 3 adenocarcinoma of the stomach involving the proximal half. Segment of colon involved by continuity.

Four month later on 8/4/51, the patient was readmitted for closure of the cecostomy. She was eating three meals a day with midmorning and afternoon feedings and has gained four pounds. Her main complaint was that the cecostomy acted every time she ate. After closure of the cecostomy on 8/8/51, this disquieting occurrence was eliminated. There had been no regurgitation or evidence of esophagitis. Report on April 24, 1952 is satisfactory.

CASE NO. 4 — Hospital #65841

Mrs. K., age 74, entered Research Hospital 6/3/51. X-ray examination revealed a large polypoid lesion involving greater and lesser curvature in the pars media of the stomach.

On 6/11/51, through a transverse incision, a total gastrectomy with removal of greater omentum and spleen was done and a jejunal food pouch was constructed. Tube feeding were begun on the 4th day and oral feedings on the 10th day. She had an uneventful postoperative course and was dismissed on 7/1/51.

Pathology report was a reticulo-cell sarcoma involving most of the stomach and invading the gastro-colic and gastro-hepatic omenta.

Patient was seen and x-rayed on April 20, 1952 and found to be feeling well. Twelve pounds gain in weight. X-ray showed a large functioning food pouch. She eats three substantial meals a day with protein milk in midmorning and afternoon.

CASE NO 5 — Hospital #66055

Mr. A. R., age 78, was admitted to Research Hospital on 6/13/51 because of three gastric hemorrhages in the past two months. The radiologist reported a large filling defect in the pars media of the stomach.

After several transfusions the patient was operated on 6/21/51 at which time a total gastrectomy with removal of greater omentum and a portion of transverse colon mesentery was done. A jejunal food pouch was constructed.

Tube feedings were started on the third day and oral feedings on the seventh day. Patient was dis-

missed on 7/5/51 in good condition. The pathologist reported a large grade 3 carcinoma of the pars media with ulceration and penetration of the anterior wall of the stomach. Now, ten months from date of operation, patient has mediastinal pain, probably extension. Otherwise looks well.

CASE NO. 6 — Hospital #25034

Mr. S. T., a 65 year old colored man was admitted to Wheatley Hospital on June 6, 1951 with a large carcinoma involving the upper half of the stomach. On July 13, 1951 a total gastrectomy with construction of a jejunal food pouch was done by Dr. W. W. Cummins of our group. A Levin tube was passed down into the jejunum and tube feedings were given for 6 days and oral feedings were then started. The convalesence and postoperative course were without incident and patient was discharged on the ninth postoperative day.

The pathologist reported an extensive Grade 3 carcinoma involving the fundus, cardia and lesser curvature of the stomach with involvement of one adjacent lymph gland.

On last report in March 1952, this patient is taking 3 fairly substantial meals a day with nourishment in midmorning and afternoon.

CASE NO. 7 — Hospital #68849

Miss E. G., a white female school teacher age 65, was admitted to Research Hospital October 17, 1951 with a chief complaint of epigastric pain and dyspepsia with loss of appetite over a period of 6 months. Weight loss of eighteen pounds past six months, Hb 67%. She was given two 500cc transfusions. X-ray reported a large ulcerated area on lesser curvature of stomach. On 10/22/51 a total gastrectomy with spleenectomy and resection of all available glands around the coeliac axis was done. A food pouch of jejunum was constructed in the manner given above and the Levin tube brought down the distal loop for purposes of feeding fluids. At the time of operation no metastases were present in the liver. Pathologist reported a large carcinoma of the stomach involving a small portion of the lower esophagus.

The postoperative course was uneventful until the 6th postoperative day at which time the Levin tube slipped up and was removed. Following this, the patient began to regurgitate intestinal contents and some thin barium was swallowed which showed immediate passage through the food pouch. The radiologist believed the obstruction due to spasm or incomplete obstruction and a waiting course was followed until 11/5/51 at which time, since patient continued to vomit on occasions, it was decided that a true obstruction of the small bowel existed.

The old incision was reopened and an adhesive constricting band involving the lower small bowel was found and released.

The constricted area did not expand readily so an entero entero-anastomosis was done. The patient reacted well and was taking food and up and about on the 2nd postoperative day. Other than for slight drainage from the incision the patient had an uneventful recovery and was discharged from the hospital November 15, 1951. Patient expired on December 14, 1951. Coronary thrombosis — autopsy.

COMMENT

This technique has been used by us in seven consecutive cases without mortality or undue morbidity. In each case a Levin tube was passed into the jejunum well below the Roux-en-Y anastomosis for feeding purposes and was left in place an average 9 days. In none of the cases was there evidence of a leak at the site of anastomoses.

None of these patients have complained of reflux esophagitis and all have taken progressively more food with the passage of time with corresponding slight gain in weight.

One case, postoperatively had distention of the proximal colon after an associated transverse colon resection. Cecostomy was done which was subsequently closed.

One case developed small bowel obstruction which was surgically relieved. It is not our belief that any of these patients have been cures because of the extent of the lesion in each case.

We present the technique with the belief that it provides an adequate pouch for food intake, lessens requirements for frequent feeding, provides facilities for balanced diet and diverts duodenal contents and lessens incidence of reflux esophagitis.

Colon—Closed Versus Anastomosis.—Modern preparation of the non-obstructed colon, the use of antibactericidal drugs and the improved surgical technique have made open colon anastomosis a relatively safe procedure.

The essentials for open anastomosis are: A non-obstructed clean bowel, intestinal antibiotics, bowel approximation without tension and an uncompromising blood supply.

Peritonitis does not develop from an adequately prepared bowel. It results from: A bowel unsuitable for opening, an insecure anastomosis, tension on the suture line, localized necrosis from an inadequate blood supply or local strangulation of tissue in necrosis and leakage.

The advantages of an open anastomosis are: Excision of presenting polyps, suture under direct vision, accurate control of hemorrhage and a minimal of invaginated diaphragm.

Colon X-ray.—An x-ray film of the obstructed colon does not give as much information as in

obstruction of the small bowel. It does show a distended proximal colon with its characteristic Haustral markings but the exact site of the obstruction is relatively uncertain. Localization of the lesion can be determined by a barium enema. If the obstruction is complete it is then no obstacle to surgery. It can be readily evacuated by enema. It is only when the obstruction is incomplete that subsequent difficulty may be encountered by barium enema. The proximal colon may become impacted with dehydrated barium. It may convert an incomplete obstruction into a complete one.

Barium should never be given by mouth in obstruction of either the small or large bowel.

As the colon becomes more distended because of the closed loop nature of the obstruction, the characteristic Haustral markings become less evident. These Haustral markings in contrast to the valvulae conniventes of the small intestines are fine points of radiological interpretation and are easily detected by a competent radiologist.

The progressively distended colon is usually a closed loop obstruction, in which the blood supply soon becomes inadequate to maintain bowel viability. The segment of the colon most subject to extreme distention is the cecum, the walls of which become extremely thin and ultimately may become gangrenous and perforate. This closed loop type of colon obstruction is, therefore, in part comparable to a strangulated or a volvulus type of small bowel obstruction. It is in reality as much of an emergency as small bowel strangulation. Therefore, surgical decompression should not be long deferred, else gangrene and rupture of the cecum may occur.

Surgical Principles.—Colon obstruction presents a complication that prohibits a primary attack upon the lesion. This is quite in contrast to that of small bowel obstruction. In colon obstruction the problem is to decompress the colon and prepare it for subsequent resection of the lesion, while in small bowel obstruction, surgery is directed primarily toward removal of the lesion.

Sites For Decompression.—Obstructive lesions of the right colon may be decompressed by cecostomy or by ileo-colostomy. Ileo-colostomy is desirable and sufficient when the obstruction is incomplete or when fixation or inflammatory reaction is present. Obstructive lesions at the ileo-cecal region result in small bowel distention that often may be decompressed by the Miller-Abbott tube.

Surgical decompression for distal lesions can be done by cecostomy or transverse colon colostomy, the latter being preferable if the lesion is low in the left colon. However, in complete obstruction with extensive proximal bowel distention this is not always easy or without danger. Often the distended right transverse colon is pushed high under the liver by the enormously distended cecum which displaces everything well towards the midline and upward, so the transverse colon is difficult to approach and deliver.

The paper thin bowel wall will not withstand trauma and it is wise to decompress the colon at the most approachable point. This usually is the cecum. The procedure is a life saving measure and safety should not be comprised because of efficiency of subsequent colon irrigation. The left colon can be irrigated and cleaned through a cecostomy but not as easily as through a colostomy.

Proximal decompression for obstructions in the upper left colon or the splenic region should be by cecostomy. Right colostomy would limit the scope of subsequent surgery.

Mortality.—Brindley[12] reports seven deaths in 34 cases of acute malignant obstruction, 20.6%; Gregg and Dixon[13] — 121 cases, 34.7%. We had four in 15 cases, 26.6% and none in 18 others, performed by our present method, using our special colostomy clamp.

Loop Colostomy.—Loop colostomy is difficult to do in acute colon obstruction. The enormously distended colon can not easily be elevated above the skin level to be supported by a glass rod. Decompression by needle aspiration before elevation opens an avenue for contamination through the site of needle puncture. Manipulation is attented by some danger. Bleeding may be encountered from the mesentery by passing a supporting rod; pressure may cause subsequent bleeding or bowel necrosis.

Catheter insertion into the cecum is attended by great danger of spillage. It offers poor facilities for future bowel irrigation. We have abandoned both procedures in acute obstruction of the colon for the one we now describe.

Procedure For Colon Decompression.—In acute colon obstruction we deflate the distended bowel by needle puncture through a cecostomy or

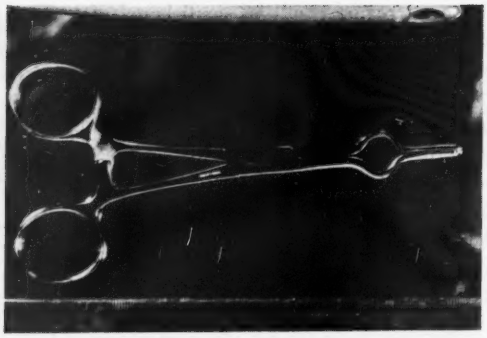

Figure 6 — Clamp and Catheter Manufactured by V. Mueller & Co., Chicago, Ill.

Figure 7 — Suspending cone of deflated cecum preparatory to applying cecostomy clamp.

colostomy incision. The deflated bowel is grasped at the point of needle puncture with a flat no tooth thumb forcep and our special colostomy clamp is applied to the suspended cone of bowel. We then proceed to completely close the abdomen around this protruding segment of colon. We open the protruding knuckle of bowel and insert into the colon through the round opening in the clamp an 18 or 20 F. catheter. This procedure exteriorizes only a small segment of the colon but gives an adequate vent for gas to pass through the catheter.

If the colon contains mostly liquid material and little gas it may be deflated sufficiently to apply the clamp, (pack around it to protect against spillage and contamination) open the cone of bowel protruding through the ring of the clamp and insert a large size catheter, suture and ligate the bowel tightly around the catheter and irrigate it sufficiently to deflate it adequately for exteriorization.

The clamp can be removed in two or three days after the bowel has adhered to the abdominal wall and bowel irrigations may be started. This procedure does not completely divert the fecal current. It is advocated for an acute obstruction, due to cancer, where resection is subsequently contemplated and for acute colon obstruction resulting from extrensic malignancy.

Figure 6 shows clamp and catheter.

Figure 7 shows the blunt thumb forcep grasping the bowel at the site of needle puncture. The clamp with round ring is being applied and a cone of bowel is shown above the clamp.

Figure 8 shows the clamp in place and catheter inserted through opening in clamp into the bowel. The abdomen was completely closed before opening the bowel and inserting clamp.

The catheter acts as a vent largely for gas and prevents redistention of the bowel. The clamp is removed later or it sloughs off and the bowel is then irrigated and cleansed. The method is

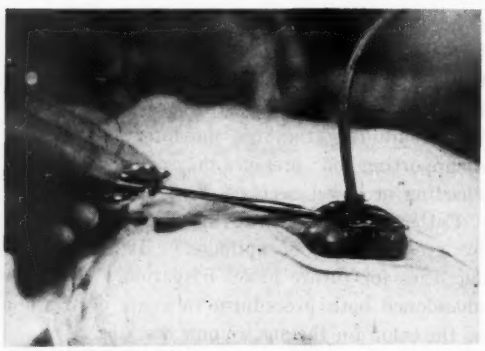

Figure 8 — Tube in position through ring of clamp into bowel. Gives vent for escape of gas — bowel will not redistend. Bowel will retract to near skin level.

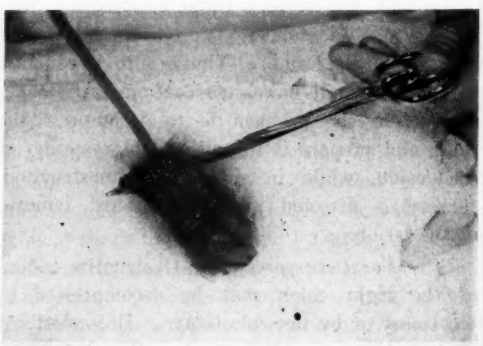

Figure 9 — Clamp useful for catheter insertion to prevent distention of the colon after abdomino-perineal resection.

simple, practically aseptic and performed without difficulty. There is no contamination. It is extra peritoneal.

Figure 9 shows the clamp applied to the protruding bowel of an abdomino-perineal resection with catheter inserted to prevent distention.

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Surgical Problems in the Aged

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Since the average life span of man has increased to 68 years, there are now according to Bortz[1] approximately 12,000,000 people in the United States who are 65 years old or more, or one in every 13 persons. This vast number of persons face many problems other than surgical which means that specialists in internal medicine, cardiology, neuropsychiatry, arthritis, orthopedics, and ophthalmology will be more in demand than the general surgeon. In our experience the general surgeon encounters largely those who are active and require little or no attention because of the infirmities of old age and are not too handicapped by any serious associated disease.

The question is frequently raised "What do we consider old?" This depends upon one's viewpoint. It has been said that the old age of youth is the youth of old age. We all know that some are old at 35 and others are still young at 80 years. This concept is well expressed by the phrase that some are chronologically young but biologically old, while others are chronologically old but biologically young. However, in order to discuss the surgical problems of the aged the author feels that an arbitrary age must be designated for the sake of discussion. Just what this age should be depends again upon the individual viewpoint. The author feels that 70 years should be the minimal age instead of 60 or 65 years usually referred to in the literature. To this end the author chose as a basis for this discussion a group of 109 patients 70 to 94 years old with an everage age of 75.1 years. These 109 patients represent consecutive operations performed by the author during the past 5 years. Surgical diseases in the field of gynecology, ophthalmology, and thoracic surgery are excluded and also for the most part, urologic and orthopedic surgery.

This group must be considered chronologically old but biologically young. For the most part, the conditions requiring surgical intervention in

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Table 1

This table represents the overall hospital mortality of 109 patients according to age groups, sex and type of operation.

Age	Total Number	M.	F.	Major Oper.	Minor Oper.	R.	D.	Mort.
70-74	58	29	29	56	2	58	0	0.0%
75-79	35	24	10	33	2	31	4	11.0%
80-84	11	5	7	11	0	8	3	27.2%
85-90	4	3	1	4	0	4	0	0.0%
90-94	1	1	0	1	0	1	0	0.0%
Total	109	62	47	105	4	102	7	6.4%

the aged are no different from those encountered in the middle or even younger age groups. There is one striking difference; practically all the surgical diseases in the aged are major. Only 4 patients (Table 1) out of 109 had minor operations.

Table 2 indicates the surgical diseases most common in the aged. Almost half of this series had malignancy: 45, or 41.3 percent were so affected. Nine of the 45 had lesions considered by the author to be inoperable; or, 1 in every 5 patients. On the other hand, more aggressive surgeons might have considered some of these malignancies as operable. Of the 9 inoperable patients, 3 had carcinoma of the pancreas, 2 of the colon, and one each of the stomach, liver, and right kidney; 1 had abdominal Hodgkins disease. If we exclude the 9 patients with inoperable malignant lesions, the remaining 36 (Table 3) with operable malignant conditions had the following operations: 19 had partial colectomies with 2 deaths; 5 had combined abdomino-perineal resections of the rectum with no deaths; 7 had subtotal gastric resections with one death; and 5 had radical mastectomies with no deaths. The mortality was 9 per cent. Coronary occlusion was the immediate cause of death of the 3 patients in this group.

The second most common surgical condition in the aged is biliary tract disease. In a total of 21 patients (Table 4), approximately 20 per cent suffered from gallstones and their complications. Jaundice was present in 10 patients, 7 of whom required drainage of both the gall bladder and the common bile duct, while 3 required drainage of the common bile duct alone. Each had had a previous cholecysteetomy. In 8 patients the gall bladder was drained because of

Table 2

Surgical Conditions in 109 Consecutive Operations on Patients with an Average Age of 75.1 years.

No.	Aver. Age	Disease	M.	F.	Operable	Inoperable	Oper. Mort.
45	74.3	Malignancies	30	15	36	9	10.9%*
21	75.3	Biliary Tract	7	14	21	0	4.7%**
18	76.5	Intest. Obst. not Malig.	9	9	18	0	5.5%***
9	74.3	Peptic Ulcers Complications	6	3	9	0	11.1%#
5	74.6	Fract. Neck Femur	0	5	5	0	0.0%
4	73.2	Rectal Dis.	4	0	4	0	0.0%
3	75.7	Rupt. Append. Peritonitis	2	1	3	0	0.0%
3	75	Inguinal Her.	3	0	3	0	0.0%
1	70	Gangrene of Foot.	1	0	1	0	0.0%
109	75.1		62	47	100	9	6.0%

*Three deaths from Coronary Occlusion. **One death, empyema of the Gall Bladder. ***One death from Gall Stone Ileus. #One death from perforated peptic ulcer.

Table 3

Location of the Primary Lesions in the 36 Patients with Operable Malignancies. All were Cancers. The 9 patients with Inoperable Malignancies are not included in this Table.

No.	Aver. Age	Organ	Operation	Rec.	Died	Mort.
19	74	Colon	Partial Colectomy	17	2	10.9%*
5	73	Rectum	Comb. abd. per. Resection	5	0	0.0%
7	75	Stomach	Sub-total Resection	6	1	14.3%**
5	74	Breast	Rad. Mastectomy	5	0	0.0%
36	74.9			33	3	9.0%

*Death from Coronary Occlusion. **Death from Coronary Occlusion.

Table 4

The various Types of Biliary Tract Disease in 21 Patients.

No.	Aver. Age	Disease and Operation	M.	F.	Mort.
8	74.2	Gall Stones with G.B. Drainage	1	7	1 death
7*	79.6	Gall Stones with G.B. and C.B.D. Drainage	4	3	0
3*	72	C.B.D. Drainage with prev. Cholecystectomy	2	1	0
3	72	Gall Stones with Cholecystectomy	0	3	0
21	75.3		7	14	4.76%

*Obstructive Jaundice was present at the time of Surgery.

empyema or threatened empyema. The remaining 3 had simple cholecystectomy. The mortality rate of this group was 4.76 per cent. The one death resulted from advanced empyema of the gall bladder.

The third most common disease in this series (Table 2) was intestinal obstruction from causes other than malignancies. There were 18 patients in this group. Strangulated hernia either inguinal, femoral, or incisional accounted for 10 while 4 resulted from intra-abdominal adhesions from previous surgery, one of whom required resection of a segment of strangulated ileum. Gall stone ileus was present in 3 patients and volvulus occurred in one. The one death in this group was the result of gallstone ileus, operated too late. The mortality was 5.5 per cent.

The fourth most common surgical disease in this series consisted of the complications of peptic ulcer (Table 2), either duodenal, gastric, or stomal. A total of 9 patients has such complications. Four required subtotal gastric resection of which 2 had gastric ulcers, 1 had an obstructing duodenal ulcer, and a fourth a bleeding, penetrating and obstructing stomal ulcer requiring both jejunal and gastric resection. Simple gastroenterostomy for obstructing duodenal ulcers was performed in 4 patients. One patient was operated upon for a perforated duodenal ulcer that was treated by simple closure in a patient 80 years old. In this group one patient died three weeks after simple gastroenterostomy for a high grade obstructing duodenal ulcer. She had been discharged from the hospital one week previously, but was brought back in severe shock and died a few hours after admission from what resembled a perforated peptic ulcer. Autopsy was not permitted to confirm this diagnosis.

Other less common surgical conditions met with in general surgery (Table 2) were as follows: 5 patients with fractures of the neck of the femur treated by open operation and nailing; 3 had a ruptured gangrenous appendix with peritonitis; 3 had uncomplicated inguinal hernia, and 1 had gangrene of the foot. The four patients with minor surgery had some form of local rectal disease. There were no deaths in this group.

A survey of this entire series of 109 patients whose average age is 75.1 years, reveals an overall hospital mortality of 6.4 per cent; (or 6 per cent if only the 100 operable cases are counted). It appears that there is little difference in the surgical problems of the aged and of the younger age groups. The opinion that "the patient is too old to be operated upon" no longer has any place in modern surgical thought. The author for years has held steadfastly to the view that regardless of the patient's age, he is entitled to the same surgical considerations as is given to younger person when faced with the same major surgical disease. Moreover, any patient regard-

less of age, who is active, is able to look after himself, and maintains an average state of nutrition presents no grave surgical problem when a major operation becomes necessary. However, because aging tissues have a loss of flexibility and because of the frequently associated pathology, we feel that additional caution is wise in managing the aged when they face a serious surgical procedure. It is significant that in this series 3 of the 7 deaths were the result of associated pathology (coronary occlusion) while the remaining 4 died as a direct result of the primary disease. Nevertheless, the author feels that for the overall picture, it is important to emphasize some of the fundamental principles involved in the preoperative, operative, and postoperative care of the oldster. The objective in doing surgery is to save health and thereby prevent invalidism and to save lives if no other alternative exists. To carry out such a program successfully the author wishes to present some of the basic principles of surgical management.

(1) The average geriatric patient should have, whenever possible, the services of both a competent internist and a competent surgeon. If the series herein presented indicates a low mortality, much credit goes to the internist whose understanding of the altered physiology in the aged has been most helpful. In a similar way the surgeon must know the anatomic alterations that accompany old age and devise a safe surgical approach in major surgical problems.

(2) Assuming that the diagnosis has been made as well as the decision on whether surgery is elective or emergency, it is important to inform the patient of the gravity of his condition. Regardless of the risk, if the patient has been otherwise well, he may be given much assurance that his chances of surviving surgery are extremely good. If the condition is an emergency, one can only hope for the best.

(3) In case of elective surgery, besides the usual routine laboratory studies, a complete blood chemistry is indicated. This is necessary because some of the usual physiologic functions may be deficient and if so, they can be compensated for through proper therapy before undergoing the stress and strain of major surgery. In other words, in the event of a disturbed electrolyte balance or a hypo-proteinemia, proper steps may be taken to correct these disturbances with a high carbohydrate and protein diet and even blood and plasma if necessary. Furthermore, vitamin studies are helpful because frequently the eating habits of old people are inconsistent and many times certain vitamin deficiencies exist, which must be corrected.

(4) Electrocardiographic studies should be made routinely to determine cardiac function. Since the capacity of the circulatory tree is more or less fixed in the aged, fluid administration parenterally must be cautiously given at all times to prevent excessive heart strain.

(5) Preoperative medication should be given judicously whether the operation be major or minor. The average dose of the various narcotics, as a rule, is too large for the elderly and the amount, therefore, should be reduced. The insertion of a Foley catheter to facilitate urinary output and the introduction of a Levine tube for continuous Wangensteen suction are essential measures before going to surgery.

(6) The administration of the anesthetic demands an experienced anesthetist, whether a graduate nurse or a graduate in medicine. The margin of safety, or the zone between stability and instability of the aged while under anesthesia, often is narrow. The author feels that the anesthetist should choose the type of anesthetic agent best suited for the particular patient. The low mortality rate in this series of patients reflects in no small part the efficient work of the anesthetists.

(7) During the course of the operation intravenous fluids (preferably blood if the operation is major), is a necessity to compensate for fluid and blood loss. Here it becomes the duty of the anesthetist to estimate the amount of blood loss and at the same time determine the amount of replacement. This constitutes a grave responsibility for the anesthetist because the blood vessel walls in the older person have lost much of their former contractibility and cannot tolerate variations of blood volume either in excess or below the normal level.

(8) The surgeon must be qualified both from the standpoint of surgical judgment and technical skill. If the surgeon can accomplish what he hopes to by a more conservative method, such a method should be employed. On the other hand, if a more radical procedure becomes mandatory to give the aged patient his only chance for cure, then it should be used. Regardless of the outcome the procedure will have been justifiable.

(9) Alert and experienced care by both the nursing and surgical staff in the immediate postoperative period frequently determines the success or failure of the operation. The so-called "recovery room", if available with a competent personnel is a great asset. Furthermore, frequent blood pressure readings and change of position, free movements of the arms and legs, deep breathing and coughing exercises, and early ambulation preferably starting the day of surgery, are of the utmost importance. Sedation should be light, never deep. It is much better to permit the patient to have some pain and discomfort to assure body movements. A single sedative is preferred to combinations of several. All sedatives should be written as a single order. Permission for repeat orders ought to be given only after the patient has been seen by a member of the surgical staff.

(10) The maintenance of an adequate fluid and electrolyte balance requires constant vigilance. Hydration which places undue strain upon cardiac activity must be guarded against. It is better to keep these patients on the slightly dehydrated side of the ledger. Cardiac as well as respiratory stimulants may be indicated, but should never be made standing orders but given as single orders.

(11) The value of continuous Wangensteen suction during the postoperative period to maintain gastric and upper intestinal decompression cannot be overemphasized. This permits fluids by mouth freely as soon as the patient regains consciousness which is very gratifying and relaxing to the patient. At the same time continuous suction prevents postoperative vomiting as well as tracheal and bronchial aspiration and thus may prevent serious pulmonary complications. The suction apparatus must be in constant working order, otherwise far more harm than good is accomplished.

(12) The use of vitamins should not be overlooked. If they have been indicated preoperatively they are all the more indicated postoperatively. As to the use of antibiotics, the author feels that they have only limited value unless there exists active infection in the surgical field, or the field is potentially contaminated. The surgeon must constantly be on the alert for any undesirable reactions, and should they occur, antibiotics must be stopped at once.

CONCLUSION

In this study we have made no attempt to cover all the clinical details incident to surgery in the aged. However, we have attempted to set forth the various surgical diseases requiring major surgery in 109 consecutive operations on patients whose average age was 75.1 years. Furthermore, evidence has been presented that this series did not offer any more serious problems, than might be offered by a younger age group with similar diseases; the overall hospital mortality of only 6.4 per cent gives satisfactory proof of this view.

Advances in modern surgery, whether surgical judgment, technical skill, safety of anesthesia and its expert administration, electrolyte balance, plasma and blood transfusions, antibiotics, sulfa drugs, or nursing care that has reduced the mortality in surgery in general has in a similar way benefited the aged. It probably cannot be said that the aged of today are more rugged and can tolerate major surgery better than the aged of yesterday. There are so many more old people living today than ever before, who are enjoying the many advances of modern surgery. The author feels that the hopeful attitude assumed today by both patient and surgeon toward surgery in the aged and the many great advancements in medical science during the past several decades are both masterfully reflected in the low mortality rates in major surgery of the old people today. It, therefore, would not be improper to assume that most all the problems of major surgery in the aged have been solved and that the phrase "he is too old to be operated upon" no longer holds the place it once did in the horizon of surgical thinking.

Some Features of the Pathological — Physiology of Congestive Heart Failure

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The extensive use, in recent years, of physiological techniques in the clinical investigation of cardiac failure has added very considerably to our quantitative knowledge of this condition. The applied techniques are particularly those which allow the determination of the cardiac output and an evaluation of kidney function.

The failing heart may be considered to be a heart the output of which is not sufficient to meet the needs of the tissues and is due, at least in part, to abnormally inadequate myocardial contractile performance. The normal heart, on the other hand, adjusts its output to meet the needs of the body tissues. These normal adjustments are nervous, humoral and myocardial and can cause increased heart rate and increased stroke volume, both of which can result in the increased output necessary to carry the increased oxygen which the body requires in its daily activities. Increased heart rates, within normal limits, can about double the cardiac output. Increased stroke volume can also double the output. The effect of these combined can at least quadruple the resting output. In the failing heart the stimuli to these adjustments is probably usually present but the myocardial contractile response is inadequate and the delivery of oxygenated blood to the tissues does not meet their needs.

The contractile force of the heart depends (importantly) upon its diastolic muscle fiber length and this depends (importantly) upon the venous pressure. A rise in venous pressure results in an increase in cardiac output (Starling's "law of the Heart"). This mechanism in the normal heart is very sensitive; slight rises in venous pressure, within the limits of normal variation, cause comparatively large rises in cardiac output. This ascending portion of the curve is the range of physiological adaptation.

This mechanism has its limits, as the venous pressure rises progressively the cardiac output reaches a peak and then, in spite of continued rises in venous pressure, the cardiac output falls. In this, the descending portion of the curve, increases in venous pressure cause overloading, overextention of the cardiac muscle fibers, and low levels of cardiac output. In the failing heart, with a pathologically deficient contractile force, this fall in output with rise in venous pressure may occur at, a little above, or below, the normal resting cardiac output.

Cardiac failure may be divided into two categories: "low output failure" and "high output failure". The more common of these, "low output failure", is related primarily to the heart itself: rheumatic, hypertensive, arterio-sclerotic, coronary and luetic heart diseases. In these conditions the output is lower than is normally required. In these conditions the venous pressure tends to be elevated. Up to a point this increased venous pressure tends to cause increased output and is beneficial, but too soon the point is reached where increased venous pressure tends only to cause decreased outputs.

In contrast "high output failure" is related to diseases primarily outside of the heart itself: chronic anemia, beri-beri, chronic anoxia, thyrotoxicosis (probably), and arterio-venous fistula, Paget's disease and some congenital heart disorders. In these conditions the transportation of sufficient oxygen to the tissues can only be accomplished by high cardiac outputs. The stimulus to these high outputs is oxygen need. The heart may perform this increased work satisfactorily for long periods of time but eventually it may suffer contractile weakness and cardiac failure intervenes. As the needs for oxygen are undiminished and as the stimulus to a high output still remains, the cardiac output is still found to be above normal but, in failure,

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still inadequate. The venous pressure may rise and, as the heart is pathological, the rise in venous pressure may only result in decreased cardiac output.

In both of these conditions some aspects of kidney function become abnormal. It has been found that in congestive failure the blood flow through the kidney is markedly reduced (1). This same reduction in kidney blood flow occurs in exercise (1), and whatever its mechanism seems to be a response to relative oxygen lack. Accompanying this reduction in renal flow there is a decrease in glomerular filtration and, for whatever reason, there is a decreased excretion of sodium (1). This retention of sodium by the kidney is accompanied by the retention of an excess of water in the body especially in the extracellular spaces, i.e. the interstitial spaces and in the blood (2). This tendency of the blood volume to rise is considered to be partly responsible for the rise in venous pressure in failure.

A vicious circle may occur. Inadequate output tends to result in increased venous pressure and the increased venous pressures, in these pathological conditions, result in still further reduction in cardiac output.

Rational therapy is based upon the pathological-physiology involved. In the first place rest is of importance. Rest reduces the oxygen need, reduces the requirement for cardiac output, reduces the venous pressure and should improve renal hemodynamics. The use of the digitalis compounds has an important role in increasing cardiac efficiency (3), increasing output, reducing venous pressure (4), and improving kidney blood flow. The use of sodium restricted diets or of mercurial diuretics, which act to increase sodium excretion, accomplish a decrease in circulating blood volume and again a decrease in venous blood pressure. The therapeutic use of venesection in the treatment of low output failure has been investigated (5); it has been found that the withdrawal of about 500 c.c. of blood resulted in a reduction in venous pressure and improvement in cardiac output and in symptomatology.

Another illustration of the effects of changing the venous pressure has been observed (6) in an instance in which packed red blood cells were given to a patient with chronic anemia and incipient congestive failure. The giving of the red cells raised the venous pressure, reduced the cardiac output and precipitated severe cardiac failure.

In conclusion: In congestive heart failure the cardiac output is not sufficient to meet the body needs for oxygen. There results a rise in central venous pressure due to resistance of the heart to filling and to a retention of sodium and its accompanying water by the kidney. This stimulus to increased contractile force, may within limits be beneficial, but in the abnormal heart with its inadequate contractile mechanisms it may lead to decreased force of beat and reduction in cardiac output. Modern treatment, as yet far from completely adequate, has as its aim the correction of these faults.

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Bronchoscopy Re Bronchitis and Chronic Pulmonary Abscess

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In recent years the chronic type of cough or bronchitis has become a matter of increasing concern to the general public. Before the advent of laryngoscopy, bronchoscopy, esophagoscopy, thoracic surgery, chemotherapy and the antibiotic drugs, conflicting views on various aspects of the problem had been expressed by different investigators and laryngologists. Hence the idea of this paper with a case report illustrating the importance of bronchoscopic diagnosis, aspiration and chemotherapeutic endoscopic treatment in such cases.

Generally speaking, bronchitis superimposed upon emphysema, pulmonary abscess, pulmonary fibrosis or bronchiectasis, may so obstruct the bronchial passages that respiratory failure and death could easily result. Thus we may think of the extreme conditions as follows: The exudate and local edema of an extensive bronchitis produce more and more bronchial stenosis and obstruction. The lungs, in an attempt to increase an interchange of air, greatly increase negative pressure during the act of inspiration, bringing about increased bronchial secretion and exudate. Should anoxemia become extremely progressive, cerebral centers naturally become involved or depressed until the cough reflex arc is abolished; and death may occur by suffocation.

In reviewing the literature on such conditions one is particularly impressed concerning the mistaken diagnosis in connection with such dramatic symptoms as cyanosis and laborious dyspnea — frequently diagnosed as pneumonia or left ventricular heart failure. However, a carefully made history will undoubtedly reveal the true picture of the case. For instance, the patient's age is generally past forty-five and for a number of years there has been bronchial cough with the familiar type of expectoration, more or less asthmatic wheezing and slight dyspnea on exertion. The history also reveals that the patient began with the complaint of a seemingly trivial upper respiratory tract infection; the family doctor called it a "cold" and "sinus trouble". Here again, fundamental differences exist in reference to chronicity of the case. A considerable number of patients admit negligence, plead poverty and indulge in self-pity. Some had their condition diagnosed as bronchial asthma and were advised to live in Arizona.

But the laryngoscope and bronchoscope have revolutionized the entire conception of bronchial obstruction. It is well to remember that before the advent of endoscopy, autopsic studies revealed bronchi obstructed by alterations in tissues or by the products of such pathologic alterations. It was then realized that absorption by the circulatory apparatus could bring about atelectasis in the tributary bronchi; but observing the living air passages under bronchoscopy reveals the fact that bronchial obstruction in the living is of the valvular type. In this connection we are reminded that such obstructions are dependent upon physiologic movements that cease at death — the movements therefore, are not seen at autopsy. The valvular mechanisms are not based on guesswork or hypothesis; they are objective findings seen through the bronchoscope. Such observations were made already about thirty years ago. Later it was demonstrated that endogenous foreign bodies (exudates — endobronchial, etc., detached tumor tissue, sloughs, sequestra of cartilage, etc.) bring about the same results.

We finally come to a short discussion of so-called chronic bronchitis — a term often loosely applied at some time or other in the course of some ailment or after a case of influenza, coryza, allergic rhinitis, etc. with a protracted cough. In many of such cases a diagnosis by exclusion

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could be correct. But this would not necessarily mean that we are without problems in the absence of physical sputumary, x-ray and bronchoscopic study re bronchial and pulmonary disease. Hence our emphasis on protracted and productive cough. We are not probably so interested in the simple mucosal inflammation that is commonly implied in the name "chronic bronchitis", but we do think of the pathologic processes that could masquerade under that term. It should be added that the bronchoscope by contributing exact knowledge of diseased conditions of the living tissues without waiting for autopsy, has proved that this method of procedure is very fundamental to all diagnoses of diseases of the chest, especially combined with laboratory tests and x-ray.

A most interesting aspect is the analysis of 92 consecutive cases reported by Jackson. These patients came with a working diagnosis of chronic bronchitis. Forty had stenosed bronchial conditions; twenty-one had incipient bronchiectasis; four had neoplasms (benign or malignant); seven were T.B. in origin; only twenty had evidence of simple diffused bronchial inflammation (bronchitis). Unquestionably such analysis is worth while remembering.

A review on a conspicuous feature of the bronchoscopic appearances of a diffused chronic bronchitis by the above author stresses the changed characteristics of the secretions. Under normal conditions we generally find some diffused transparent moisture that covers the mucosa with an apparent film; in the inflammatory condition we find the secretions adherent in patches, plaques or droplets that are opaque with whitish or yellow-tinged cloudiness, often greenish. In this stage the mucosa is thickened, reddish and velvety; as the disease advances the mucous membrane is patchy, cicatrical, and branching vessels can be observed. Having ruled out bronchial obstruction and having diagnosed a case of chronic bronchitis do not necessarily mean that we are without problems relating to the early detection and diagnosis of this disease. Why? Because chronic bronchitis is very prevalent in many parts of the world. It is self evident that this type of patient pays little attention to interpretation of symptoms outside of the cough. Where does he go for his cough medicine — until he has four or five bottles of cough mixtures? How does he manage his chest pains if he has any? Who is giving him "cough medicine" and sedatives? More important than the self-medication and the visits to drug stores are the human psychological peculiarities — fear and the dread of consulting a throat surgeon and incurring expense.

As to nontuberculous pulmonary abscess we must remember that the term has been too loosely applied, the literature on the subject so chaotic that a clear analysis of the entire picture is difficult to obtain. Moreover, a clear analysis of statistics is even more confusing. It is believed according to several authors, that the prophylaxis of lung abscess due to obstruction is one field in which treatment through bronchoscopy occupies a position of greatest usefulness, as obviously shown in cases of obstruction due to foreign body (98% of cases in the prevention of suppuration). Restoration of drainage and ventilation by bronchoscopic treatment re-establishes the defensive power of the lungs. In diagnosis, the bronchoscope carries the excellent role of giving us the important clinical information of the living diseased conditions found in the bronchi or lungs. Furthermore, biopsy obtained through bronchoscopic technique furnishes absolute information in most complicated cases.

Also in pulmonary abscess formation we generally obtain the predominant bacteria and such specimens are obtainable with ease, precision and certainty. It is now well known that bronchoscopic treatment in acute pulmonary abscess may not only provide adequate drainage, but will also permit the abscess to go on to simultaneous closure and healing. The most common complications that could ensue in such cases are, of course, the dreaded three conditions — gangrene, bronchiectasis and pneumonitis of the progressive suppurative variety.

As to the conservative bronchoscopic and general treatment in subacute and chronic abscess we have at our command several different but commonsense related procedures. For instance, a favorable diet, a good deal of rest, attention to symptomatic treatment, penicillin or some other antibiotic, sulfa drugs (if favorable as to the patient's blood condition), bronchoscopic aspirations and spraying with a 5% solution of sulfathiazole and, if necessary, transfusions. One of the most important points brought out is the role of bronchoscopy in connection with drainage and ventilation. It is accompanied by frequent

endoscopic aspirations of pus or endogenous sequestra, weekly, biweekly or even oftener if necessary in order to lessen the load of the bronchial cilia. Such treatment may prevent stagnation and other septic processes that could bring about the condition known as bronchiectasis.

Case Report.—About ten years ago, a man, J. B., aged about 39, came to the office complaining of hayfever, nasal and "sinus trouble" — a condition he experienced since a number of years before this consultation with me. He appeared pale, undernourished, underweight, nervous and coughed a good deal. He further complained of pressure in the throat with a constant urge to cough and expectorate. Yes, he was examined by several doctors; he was bronchoscoped by a well-known specialist in one of the clinics and was told to have bronchoscopic aspirations and nothing else. But he was quite restless because of his nasal irritation, sneezing, coughing and constant spitting. A checkup by indirect laryngoscopy and anterior and posterior rhinoscopy revealed only two small polyps extending from the ethmoidal region. He then consented to go to the Hospital for the removal of the polyps and additional study and observation. The blood pressure was syst. 100; diast. 80; pulse 72; temperature normal; hemoglobin 75%; reds 4,440,000; and the whites 8900; Wasserman negative; urinalysis normal as to specific gravity, reaction, sugar, albumin or pus. X-ray of the paranasal sinuses showed evidence of cloudy maxillaries and ethmoidals. The patient refused to have his chest x-rayed at that time — he expected to be called into the army and wanted to see what the army doctors would advise. His polyps were removed and for a while he seemingly improved. He was soon drafted into the army and I believed the case to have been closed.

Several years later, upon release from the army, he returned to my office with complaints of various chest symptoms in addition to his hayfever and cough. After a preliminary nasal and throat examination I advised a checkup as to diet, temporary local nasal treatment and x-ray of his chest and bronchoscopy. He consented but before completely carrying out my advice, he disappeared for a period of about five years. When he again reappeared about two years ago, I insisted that he submit to thorough x-ray examination of his chest and peroral endoscopy which he finally agreed to do.

X-ray report revealed, according to a competent roentgenologist as follows: "The chest shows rather heavy hilar and lung markings. In addition there is a marked emphysema in the lower left lung with flattening of the left dome of the diaphragm. All of these changes are probably due to repeated lowgrade infection. There is a possibility of a bronchiectasis associated with the emphysema in the left lower lung. The heart and aorta are normal."

I advised the patient of his condition and he consented to a laryngoscopic and bronchoscopic examination. Laryngo-tracheo-bronchial tree revealed the following: No distortion or obstruction in the larynx or trachea except a simple chronic inflammatory condition. The left bronchi revealed a typical case of chronic bronchitis with pulmonary suppuration (suspect of lung abscess with bronchiectasis). The patient responded well to bronchoscopic aspiration and sprayings with a solution 5% sodium sulfathiazole. Repeated bronchoscopic aspirations and sprayings at the hospital and office treatments improved his condition to an unbelievable extent. He gained in weight and strength and no longer coughs or feels "cold". His entire demeanor has changed for the better.

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EASIER SAID THAN DONE

Gastroscopic biopsy is not the last word in diagnosis. The procedure locally is traumatizing to a degree and uncomfortable, but seldom painful. There are many technical difficulties. For instance, the biopsy forceps handle and your hand and eye are about a yard apart from the objective. Have you ever tried to pick up a pin from the floor while standing on your head? This is somewhat similar to the sensation I had with the first few biopsies. In spite of these admitted difficulties, one cannot ignore the fact that here is a method whereby tissue from a lesion that can be seen is removed for leisurely study. One must say, therefore, that an objective diagnosis from this tissue is final and is the equal of that of any postmortem or surgical specimen if positive for malignancy or disease. *Paul L. Shallenberger, Advances In Diagnosis Of Gastric Disease. Pennsylvania M.J. Aug. 1952.*

Common Neurosurgical Problems in General Practice

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This presentation deals with five symptoms or symptom complexes frequently met with by the general practitioner. These are headache, epilepsy, sciatica, intractable pain, and infantile hydrocephalus. At times these symptoms indicate the presence of a neurosurgical condition. A knowledge of the possibilities involved is essential for their intelligent investigation and management.

Headache: Headache is one of the most common of human complaints. It may be associated with malformation or disease of any organ or system of the body and is perhaps as often a symptom of physiologic disturbance as of anatomic alteration. Often the physiologic disturbance is secondary to emotional conflict or anxiety.

The principal pain-sensitive structures of the head are the scalp, galea aponeurotica, and fascia and muscles of the head; the periosteum of the skull low in the frontal, temporal, and occipital regions; the dura mater at the base of the skull and around the venous sinuses; and the intercranial arteries. The mechanisms that produce headaches are traction on cerebral veins with displacement of the great venous sinuses, traction on the middle meningeal arteries or the large arteries at the base of the brain, changes in caliber of the intracranial arteries, direct pressure on cervical nerves that carry pain impulses from the head or inflammation in or about the pain-sensitive structures of the head.

It is necessary to determine the location and type of the headache, its mode of onset, duration, and frequency. Headaches may be acute, occasional, or chronic. Chronic headaches may be continuous or recurrent. The acute or the occasional headache need not be considered in detail here. We are concerned with continuous or recurrent headache. All recurrent headaches are not migraine, but the history of recurrent episodes of headache with freedom from discomfort between attacks suggests a physiologic rather than an anatomic disturbance.

Because headache is such a common manifestation of physiologic or anatomic disturbance a legion of conditions have to be considered in differential diagnosis. From a neurologic standpoint, the most important diagnostic categories to consider are cerebral vascular anomalies or disease, migraine, post-traumatic states, increased intracranial pressure and psychogenic headaches. Increased intracranial pressure is the rarest of these but of most interest to the neurologic surgeon.

The headache of increased intracranial pressure is persistent if not continuous. It is usually worse after several hours in the recumbnt position and often awakens the patient in the early morning hours. Nausea and vomiting tend to occur on arising and are usually present when the headache is severe. Vomiting without nausea often occurs and may be forceful (projectile).

Epilepsy: About 500,000 people in the United States are subject to a form of so-called epileptic seizures. This makes epilepsy about as common as tuberculosis. Patients with epilepsy can be classified into those whose seizures have an organic cause in some demonstrable disease or injury of the brain, the symptomatic group and those in which no such cause can be demonstrated, the so-called idiopathic or cryptogenic groups. Organic injury or disease which may produce epileptic seizures includes birth injury as well as cerebral injury at any age; inflammatory lesions such as encephalitis, brain abscess, granulomas; vascular anomalies as angiomas and arteriovenous aneurysms; neoplasms; and the spontaneous cerebral vascular disturbances, such as hemorrhage, thrombosis and embolism.

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The usual clinical classification of convulsive seizures divides them into grand mal, Jacksonian seizures, petit mal, and so-called psychomotor or temporal lobe seizures. Of these the Jacksonian seizure has the greatest significance to the surgeon because it is most often caused by a local irritative lesion. This is a local seizure of some part of the body or even one side without loss of consciousness. The attack may spread to adjacent areas by the "March" of the seizure up or down the motor cortex. Jacksonian seizures usually have an organic cause and the lesion can be accurately localized by the location of the seizure. Consequently, patients presenting this type of attack should be thoroughly studied for possible surgical lesions. It must be kept in mind that the Jacksonian onset of a generalized (grand mal) seizure and a localized sensory seizure have the same diagnostic significance as true Jacksonian seizures.

The age of onset of seizures furnishes some presumptive clue to their cause. Attacks beginning in the first two years of life are usually due to birth injury, cerebral degeneration, or some congenital cerebral defect. If the onset of habitual seizures is in childhood (between two and ten years) an objective course of the seizures can usually be found and is often birth injury, post-natal trauma, cerebral thrombosis during an acute illness, or encephalitis. Convulsions starting during adoleseence (second decade of life) are apt to be of the cryptogenic variety, unless secondary to brain injury. When the onset is in youth, that is, between 20 and 35 years of age, cerebral trauma, vascular anomalies, or intracranial tumors are the most important causes. In older adults, between 35 and 55 years of age, the most common causes of onset of epileptiform seizures are cerebral neoplasm, head injury, and arteriosclerosis. After the age of 55 vascular lesions of the brain are the most common cause of seizures but brain tumor is still possible, even in the aged.

All seizures beginning in adult life must be regarded as due to intracranial neoplasm until both meticulous clinical investigation and the passage of time have proven otherwise.

Sciatica: The syndrome of low back pain associated with sciatic pain is a common one. The concept that this could be produced by protrusion or extrusion of a lumbar intervertebral disc is relatively recent but has become firmly established during the past two decades.

This syndrome must be considered a symptom, not a disease, and a thorough search must be made for the cause. It may be produced by skeletal or muscular involvement such as spondylitis or acute and chronic infection. True neuritis of the sciatic nerve is rare but can occur. Intraspinal tumor is also to be thought of especially if there is bilateral sciatic pain. Malignancy of the pelvis, especially carcinoma of the cervix in the female and of the prostate in the male may either metastasize to the lumbar spine or by direct extension involve the lumbosacral plexus.

The history especially as to relation to back strain or sprain is very important. Since pain due to intervertebral disc protrusion is often temporarily relieved by rest, a history of remissions with exacerbation after heavy work or exercise is important. Pain due to irritation or compression of a nerve root has certain characteristics. It is constant in location, usually severe in nature, and is made worse by increase of intraspinal pressure as by coughing, sneezing, or straining. However, the pain of a ruptured intervertebral disc is usually relieved by rest and increased by activity. It may be more severe on sitting than on standing. The pain of spinal cord tumor on the other hand is often worse at night and the patient may get up and walk the floor for relief.

General physical examination with special reference to the back must be carried out. Pelvic and rectal examination must exclude neoplasm arising outside the spine. Roentgenographic examination of the lumbo-sacral spine and pelvis is necessary to reveal primary bone lesions. The Lasegue, Patrick and Naffziger (bilateral jugular compression) signs are important in differentiating nerve root irritation or compression from hip joint disease. Careful neurologic examination is essential. Reflex changes are important. In protrusions of the fifth lumbar intervertebral disc, the Achilles reflex may be impaired or absent. Protrusions of the fourth lumbar disc may also affect the ankle jerk; rarely they affect the knee jerk. Hyperesthesia or hypesthesia to pin prick about the foot must be carefully sought for. Atrophy of the calf muscles and paresis of plantar flexion of the foot is at times associated with fifth lumbar disc protrusions. Paresis of the extensor hallucis longus

and even of dorsi-flexion of the foot may be seen with protrusions of the fourth lumbar disc.

Spinal fluid examination is of great value when intra-spinal neoplasm is suspected. Complete or partial subarachnoid block may be seen and marked elevation of the spinal fluid protein is usually present with tumors of the lumbar spinal canal. Contrast myelography is of great value in recognizing and localizing intra-spinal lesions, especially disc protrusions. However, its accuracy in skilled hands is only about 75 per cent and the percentage of error is much higher if the examiner lacks experience.

Intractable Pain: For the purposes of this discussion, intractable pain may be described as pain constant and severe enough to require the continued use of narcotics for relief and either due to inoperable malignant disease or to some other condition not amenable to direct treatment. These patients unless in the last stages of malignant disease deserve the comfort and relief that an appropriately planned and executed neurosurgical procedure can give them. Pain in the trigeminal distribution, the nasopharynx, the posterior cervical region, or confined to four or less intercostal nerves can be controlled by dorsal root section (rhizotomy). Certain cases of pain in the lower extremities or pelvis, particularly in advanced malignancy may be treated by subarachnoid spinal alcohol injection. This carries considerable risk of motor disability and sphincter disturbance and should be reserved for patients who are already bed-ridden or have a short life expectancy. Intractable pain below the nipple line (fifth thoracic dermatome) can be relieved by anterolateral cordotomy (spino-thalamic tract section). If the pain is bilateral the cordotomy should be carried out in two stages, a week or more apart and at least two spinal cord segments apart. High cervical cordotomy may be used for high thoracic or upper extremity pain but I prefer medullary tractomy for these patients.

Certain patients with pain of severe nature and especially some with malignant disease have a marked emotional reaction to their condition with fear, anxiety, and tension. Some of these patients react poorly to rhizotomy or cordotomy and are resentful of the resultant sensory loss. Prefrontal lobotomy is a useful procedure for them. They still have pain perception but are relieved of anxiety and tension and usually do not complain spontaneously or ask for narcotics. On the other hand, well adjusted patients with stable personalities who are facing their fate with equanimity should not be subjected to the alternation of personality and behavior which prefrontal lobotomy produces.

Hydrocephalus: Enlargement of the head during infancy is frequently seen. It is usually associated with tenseness or bulging of the fontanelle and prominence of scalp veins. As it progresses the appearance of the child is characteristic with a proportionally large head, small triangular face, prominent forehead and convergence of the eyes. Since any expanding intracranial lesion in the infant will produce enlargement of the head, the possibility of subdural hematoma, neoplasm or even abscess must be considered. Tumor and abscess are rare but infantile subdural hematoma is more common than is generally realized.

It should therefore be emphasized that every infant whose head is noted to be enlarging should have a diagnostic bilateral subdural tap. If a subdural hematoma is not found further investigation should be carried out, specifically, dye and air studies. The former will determine whether a block or obstruction exists in the ventricular system, the latter may reveal the type and location of the causative lesion and also provide a means of evaluating the degree of enlargement of the ventricles and consequent cerebral damage. In the majority of patients the hydrocephalus will be found to be due to some congenital or inflammatory obstruction of the cerebrospinal fluid pathways or to disturbance of the mechanism of absorption of the fluid.

If feasible a direct attack should be made on the cause of the obstruction. Often this is not feasible either because of the nature or location of the lesion. The surgeon has a variety of pallative procedures for either shunting the flow of cerebrospinal fluid around the obstruction or for drainage of the fluid into some other body cavity. These include third ventriculostomy in which an opening is made in the anterior end or floor of the third ventricle to permit escape of the fluid into the basiliar cisterns; ventriculocisternal shunt (Torkildsen) with drainage of the fluid from the lateral ventricle through a polythene tube to the posterior cistern; spinal-ureteral or ventriculo-ureteral shunts; ventriculo-antral shunt; and ventriculo-peritoneal

shunt. Each of these have their special advantages and disadvantages; all are palliative and only give temporary relief unless the cause of the hydrocephalus is self-limited or at least non-progressive. Some surgeons have reported success with resection or coagulation of the choroid plexus but this has been associated with a high mortality and given poor results in my hands.

A Review of Some Concepts in Psychiatry

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Psychiatry might broadly be defined as a science of human behavior. As such it is a basic science requisite in the education and in the application to diagnosis and therapy of a patient much as are such sciences as anatomy and physiology. As a specialty among other medical specialties it may be considered that specialty which deals with the disturbing psychological, functional and physical, disease and syndromes or symptoms for which the etiologic elements show a preponderance of causative factors in the psychological sphere.

Concepts concerning etiology of disturbed physical and mental health are expressed in terms of clinical and social medicine seen as integrated and functioning together to give us an understanding of the causative factors in disease. This is distinguished from attempting to find a specific etiology as expressed in Koch's postulates. Causative factors are seen as predisposing, precipitating and perpetuating factors. Such concepts call for an understanding of a patient who comes complaining of headache as including information about the nature, location of the headache, and the presence of post nasal drip suggesting a sinus infection. But it also includes information relative to the nature of the man's employment as a head of a chain store, his feelings about the unfairness in not receiving a bonus from his firm after a transfer which was beneficial to his firm, and the relationship of tenseness and feelings of stiffness in the neck muscles, followed by headache after his ideas have failed of acceptance by the supervisor of his district.

In the study of any disease syndrome or symptom it has been customary to think in terms of tissue alteration. Often, we expect profound pathologic changes in morphology to explain the disturbance of which the patient complains. Certainly demonstrable physiologic alteration is expected when no gross morphologic change exists. Although many conditions associated with such changes are seen it is not uncommon to find patients in whom such profound alteration cannot be demonstrated. Too often, if we continue with the complaint of headache as an example, this may call for an evaluation of eyes, teeth, sinuses, skull, brain, in what is often a fruitless search for pathologic alteration. The search for an explanation in terms of psychopathology may be overlooked. Such psychopathology as extreme hostility and aggression against persons in authority stemming from an earlier repressed hostility toward parents may not be considered as important pathology. Yet such feelings may lead to profound physiologic change with vasoconstriction and subsequent vasoconstrictor headache. In the development of the basic science of psychiatry and the specialty of psychiatry, the science of psychopathology has become as important to an understanding of disease and symp-

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toms as is the science of pathology to an understanding of the breakdown in the homestatic balance of the tissues with morphologic changes of an abnormal character.

The key to an understanding of psychologic disequilibrium or psychopathology is the development of the personality. One should understand the influences of the motivation of the individual, the goal directed activity of the person in seeking the objects and goals which will fulfill his needs, and the many adaptations made in an attempt to solve the problems created by the interferences with such motivationally induced goal directed behavior of the person. Those solutions which are made and remain as more or less specific automatic responses to similar situations encountered later in life are recognized as one of the elements of character traits. All the factors of inherited characteristics plus the automatic adaptive responses give the individual a kind of personality makeup which represents reasonable smooth flowing relationships to people and situations. In a sense it is the complementary aspect of the individual in the psychic sphere to his morphology in the physical sphere of activity. However, these aspects of the person are only completely divisible as a convenience for purposes of study. No such isolation of functioning is in fact possible for the total functioning human being.

These concepts when applied to the patient with headache require that we study, among other elements, his need for mastery of environment as a child: his striving for self assertion against environmental forces which deny him the fulfillment of his goal in aggressive overcoming of obstacles which stand in the way of satisfaction of his needs and desires. A solution is found in a denial of such desires and the development of an ingratiating, pleasing, sometimes obsequious response to authority which gives him partial satisfaction of his needs. This character trait helps him make a "normal" adjustment in the community without symptoms. Under the stress of irritations that awaken his hostile aggressive feeling the individual finds his previous pattern of behavior ineffective in controlling the aggressive impulses. A new adaptation occurs in the nature of physiological changes associated with a symptom, headache, which acts to solve the problem, but at a new sacrifice which is uncomfortable to the patient and for which he seeks relief.

Just as a descriptive classification of headaches as vasoconstrictor, vasodilator, etc., succeeds only in making a descriptive categorization which may be helpful in an understanding of and treatment of the patient, so the previous concern over classification of patients as psychoneuroses, psychotic, psychopathic personality, etc., had, and still has considerable measure of value. Nevertheless a more dynamic understanding of the forces and adaptive reaction in the individual and environment which contribute to the clinical picture will be more rewarding in the diagnosis, prognosis and treatment of the problems of the patient.

The primary emphasis in seeking a relationship between disease or syndrome, and treatment which is characteristic of disturbances in which a specific bacterial organism creates somewhat specific morphologic changes (pathology) epitomized by such clinical entities as pneumonia. Unfortunately such relative specificity between stress (an invading organism) morphologic change (pathology) and treatment has not been realized for the majority of individuals who seek help for symptoms which are disturbing to them.

The physician is familiar with the use of drugs which alter the invaders of the body to weaken them or alter the body to resist the invaders, or bring about such alterations in the tissues, chemical, psychological or structural, which help healing or alleviate pain, suffering or discomfort. He frequently fails to realize that his chief therapeutic weapon is the patient-physician relationship and what it means to the patient. The patient endows the physician with the healing qualities that a child attributes to his parent. This relationship must be studied and become as nearly a scientific tool as it can be made by each physician according to his personality, training and ever developing insight. Treatment, therefore, should not only include such therapies as mentioned above but also an awareness that improvement in the patient may have occurred because of the fact that the patient was able to benefit from having been able to express his feelings of having been unfairly treated by the supervisor and the hostility he felt at such treatment, in the non-condemning atmosphere of the physician's office.

Essentially I have tried to summarize some

very important concepts of the place of psychiatry in understanding the patient who comes to your office often with what seems an obscure basis for his difficulty. I feel that in furthering one's acquaintance with these concepts one may be able to make the obscure more transparent. Concepts and methodology somewhat different from those you customarily use may have to be introduced.

What Does the Lung Do Besides Breathing?

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Dr. Max Samter, Associate Professor of Medicine: Time was when physiology was simple. The stomach used to be an organ of digestion, the kidney of excretion and the lung of respiration. Now, the stomach appears to participate in blood formation, the kidney maintains the ph, and the lung has so many intriguing aspects that it has become desirable to devote an entire seminar to its functions besides respiration. Dr. Sadove will open the symposium and discuss the lung as a secretory organ. Dr. Hick will review its role in heat regulation and water exchange; Dr. Whitehorn its hemodynamics; Dr. Kark its effect on the destruction and production of the elements of blood and its enzymes; and Dr. Jackson its function in allergy and immunology.

Dr. Max S. Sadove: Pulmonary secretion which originates in the alveolar ducts undergoes continuous change as it moves toward the trachea. Inflammatory secretions are thick and viscoid at the site of origin. They are high in nitrogen, ash and chlorides. During the passage through the bronchial tree they become less viscoid and decrease in mineral content. Obviously, therefore, the lung must be able to digest and reabsorb at least part of this secretion.

Many factors participate in the final structure of the secretions. Dr. Poncher and Dr. Holinger conducted a series of studies which showed that oxygen thickens the secretions and blanches the bronchial mucous membranes. They concluded that oxygen should be used with caution in inflammatory pulmonary disease, in which secretions, not anoxia, are the main problem. Steam on the other hand, increases the amount of bronchial secretion, decreases viscosity and does not produce a blanching of the mucosa. Contrary to popular belief, cold water sprayed by a jet-type nebulizer would probably be even more effective than steam. Water is a very important and frequently neglected part of the regime of production of thin, easily expectorated secretions. If a patient is dehydrated, no expectorant drugs can be expected to work efficiently. The therapeutic effect of carbon dioxide has been highly over-rated for resuscitation purposes in that most patients have excess CO_2. I usually teach my students that the best place for it is in the tank from which it comes. In small concentrations, however, it thins secretions, may increase their

ash content and cause hyperemia of the bronchial mucosa. Iodides, ammonium chloride, and most other expectorants thin secretions and increase their quantity. Interestingly enough, nobody seems to be certain how expectorants work.

Dr. S. Howard Armstrong, Jr., Professor of Medicine: The action of the iodides is rather complex. Apparently they diminish some intermolecular forces that hold long chain biological molecules together in bundles. This effect is well illustrated by the effect of iodides on the formation of fibrin from fibrinogen. However, they have this effect only in concentrations which are far beyond those used in therapy. Why the small amount of iodides given to patients with, let us say, bronchial asthma, should have any effect at all is rather mysterious. The change in ash contents, by the way, is probably incidental, while the viscosity is the factor which is clinically important.

Dr. Meyer R. Lichtenstein, Clinical Assistant Professor of Medicine: It might be worth mentioning that the use of iodine compounds in tuberculosis is no longer considered the danger that it once was.

A Physician: I wonder why iodinated antibiotics permeate the lungs so well.

Dr. Harry F. Dowling, Professor of Medicine: The problem is now under study — the answer is not known at this time. Clinically it is still questionable whether preparations of iodized penicillin which are now available have a great advantage over those which are now in general use.

Dr. Robert M. Kark: Can you reduce viscosity by spraying proteolytic enzymes into the bronchial tree?

Dr. Sadove: So far the literature is confusing and inconclusive about this point. Theoretically one should expect that streptokinase, streptodornase, and trypsin might be good adjuvants in mucolytic therapy.

Dr. Ford K. Hick: When we inspire, air is warmed and moistened chiefly in the nasal passages before it reaches the lungs where it is at true body temperature. In expiration there is some cooling of the expired air and slight condensation of its moisture on the mucous surfaces as it comes near the orifice. Expired air is almost at body temperature and almost saturated. Observations on animals having a tracheotomy show that respiratory changes in air temperature are chiefly the function of the upper air passages. This function would prevent injury to the lungs in severe cold. A typical temperature value for expired air might be 32°C. The quantity of water lost in expired air per day varies greatly but is of significance. Rubner in 1902 reported a healthy man in comfortable environment lost up to 408 grams of water in 24 hours, exceeding the quantity of insensible perspiration. More recent measurements show the moisture lost from the respiratory passages to be 10-16 grams per hour or about 1/5 to 1/3 the insensible water loss. The total heat loss by warming room air and evaporating moisture is much less than that lost through the skin and for comfortable environments is probably 5 to 8% of the body's heat loss.

Man does not have the means of losing heat which a dog uses in hyperventilation. A dog exposed to heat breathes very rapidly and evaporates from the pharynx and tongue. An interesting paper (Studies in the Physiology of Exercise: Acid-Base Changes in the Serum of Exercised Dogs. H. A. Rice & A. H. Steinhaur, Am. J. Physiol., 96:529, 1931) reveals that even dogs do not do this perfectly and shows that in heat exercise induces alkalosis.

Dr. Kark: What effect does altitude have on these regulations?

Dr. Hick: I cannot answer your question. I do not believe that any work has been published on this subject.

Dr. William V. Whitehorn: It is very difficult to obtain accurate information about the pulmonary blood flow. Consequently, my remarks are at least in part speculative. The following facts, however, have been well documented:

1. The pulmonary circulation is located between the right and left ventricle. Actually the pulmonary bed contains two circulations; namely, the pulmonary and the bronchial circulations.
2. It is a low pressure system with a pressure between 20 to 25 milimeters of mercury for a systolic and 10 milimeters of mercury diastolic.
3. Because the blood flow in the pulmonic circulation must equal that of the systemic circulation, it must be a low resistance system. 15% of the total blood volume may reside in the pulmonary circulation.

4. We know that the system is markedly distensible. It is possible, therefore, to increase blood volume markedly without increased pulmonary pressure. We also know that vasomotor control has only a minor influence, and that the only effective controls of pulmonary blood flow are the outputs of the right and left ventricle and changes in intrathoracic pressure.
5. Oxygen and carbon dioxide concentrations exert local effect on lung tissue, probably direct action on pulmonary vessels.

Dr. Armstrong: How do you explain the vasoconstriction which occurs after occlusion of pulmonary vessels, for instance, following pulmonary infection?

Dr. Whitehorn: I agree that this might be the result of a reflex spasm, even if under physiological conditions vasomotor reflexes play only an insignificant part in the regulation of blood flow.

Dr. Samter: Considering the number of variables which you have mentioned, how can you possibly measure pulmonary circulation in man?

Dr. Whitehorn: You can't.

Dr. Hick: If the capacity of the pulmonary vascular bed varies, as you say, I wonder what controls it. In the skin I know at least of one factor which causes a shift in blood distribution: the increase in temperature and humidity in the environment.

Dr. Robert L. Grissom, Assistant Professor of Medicine: In enlarging Dr. Hick's question, I would like to ask Dr. Whitehorn whether the pulmonary circulation participates in the heat exchange carried out by the lungs.

Dr. Whitehorn: I believe that Dr. Grissom is correct in assuming that heat exchange is a function of pulmonary circulation but, Dr. Hick, I am unable to state how it is controlled.

Dr. Kark: Dr. Hoyle, in his book on "The Nature of the Universe," states that he knows that stars are breaking up and that the universe is expanding, but he knows neither why this happens nor the way in which it is accomplished. I know of four instances, apparently non-correlated, in which the lungs participate in production or destruction of enzymes and of formed elements of the blood. How or why this happens in the lung are mysteries.

1. The lung manufactures pro-plasmin (plasminogen), the proenzyme of plasmin which lyses clots. It is now generally believed that uncontrolled hemorrhage after shock is caused by the production and release of proplasmin from the lungs.
2. The lungs destroy prothrombin. Interestingly enough, this has been known for a long time. It explains in a rational way the rare instances of hemorrhagic diathesis seen in patients undergoing fever therapy. Fever produced hyperventilation and perhaps this caused increased destruction of prothrombin with a fall to dangerously low levels in the blood.
3. Bierman showed that the lung filters white blood cells out of the circulation. In fact, if blood of patients ill with myeloid leukemia is injected into non-leukemic recipients, the transfused white cells will be removed during one cycle of blood through the lungs.
4. The lung contains megakaryocytes and manufactures platelets. Howell has contributed experimental evidence for the pulmonary manufacture of platelets in animals. One must add, however, that it is still questionable whether the same mechanism exists in men.

Dr. George G. Jackson: While it is undisputed that the lung plays an important part in immunology, only some of its functions have been clarified in controlled experiments. I would like to list rather than discuss a number of facts which have been established:

1. Inorganic, organic or bacterial antigens reach the lung easily by inhalation.
2. The lung has large absorptive surfaces. Antigens, therefore, can enter the blood stream easily. It is known, for instance, that polypeptides can be absorbed easily from the alveolar membrane.
3. Lymphatic tissue is abundant in the lungs. It is known that young lymphocytes (and perhaps plasma cells) can release neutralizing antibodies.
4. To talk specifically of bacterial invasion: mucin, which was discussed by Dr. Sadove, has been shown to increase the virulence of certain microorganisms by inhibiting phagocytosis and by increasing the susceptibility of the host; thus mucin causes harm in the presence of bacterial infection. Since mucin, on the other hand, is able

to prevent hemagglutination of red blood cells by influenza virus, it may serve a useful purpose in the presence of virus disease of the lungs.

5. A biological substance, spermin, which has been found to be highly destructive to tubercle bacilli *in vitro*, may be present in lung tissue.

Dr. Samter: One might add that antibodies of the anaphylactic type, wherever they may be manufactured, are deposited in the lungs, at least in guinea pigs and men. Warren and Dixon sensitized guinea pigs to globulin which had been iodized with I^{131}. Immediately after the first injection most of the radioactive material appears in the liver. However, if the radioactive globulin is injected into sensitized animals for a period of two weeks, most of it is found in the lungs, apparently trapped by the antibodies in peribronchial tissue.

Dr. Grissom: Dr. Sadove's and Dr. Jackson's remarks about mucus make me wonder whether blocking agents like hexamethonium, which are likely to diminish secretion of mucus, will have a beneficial or an adverse effect on the mucous membranes.

Dr. Samter: It seems that we know relatively little of the factors which control respiratory disease. A few days ago I talked with Dr. I. Davidsohn about the subject of "susceptibility." Dr. Davidsohn feels that some instances of the so-called common cold might be due to the activation during inclement weather of cold agglutinins which are present in the mucous membranes of the respiratory tract — a thought which had never occurred to me. This, of course, is only one way of saying how much we have yet to learn.

Medical Education for General Practice

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Medical education can be divided into the period of undergraduate study and into a less sharply defined postgraduate period of training. Actually, medical education starts in the liberal arts college and continues throughout the professional life of the doctor. The primary responsibility of the medical school is to provide the proper environment in which the student, guided by his instructors, is gaining a thorough knowledge of the structure and function of the human body, while achieving an understanding of the life processes in health and disease, and particularly in getting an orientation toward the role of the physician in society. It is in the medical school that the future physician should have full opportunity to develop the habits of study, critical observation, intellectual curiosity and genuine interest in the welfare of his patients. In the last analysis, the medical schools are responsible to the public for the kind of product they turn out.

The question that occurs to the medical educator is whether there should be special schools for general practitioners, others for surgeons, and still others for the various specialists now identified. It is our belief that the answer to this should be a clear-cut "No". There is evidence at the present time that student preference for general practice is on the increase and that many schools and teaching hospitals have reevaluated their curricula and have programs of training which dignify general practice. Specialization should come only after an adequate background of training in fundamentals. The fundamental contribution of all undergraduate schools is to supply the concepts, stimulate

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the interests, give the integration, and achieve the training for social responsibility that is the basis on which further advances may be built. Medical schools must offer an orientation toward the facts and skills of medical science that goes beyond the mere training of super technicians. They must rather produce physicians who are wise in the application of their knowledge as well as skillful in its use.

The main function of the medical profession is to heal, relieve and comfort those who are sick or in distress. This, in the broadest sense, must be based on a satisfactory kind of understanding of the physical and social conditions surrounding these unhappy individuals. Usually the general practitioner, with his understanding of family background, is more likely than the speciaist to be able to develop the strong personal bond in the physician-patient relationship that will allow for full range of the doctor's contribution. The treatment of a disease may be entirely impersonal, but the care of a patient should and must be completely personal. We have the responsibility to see that our faculties, practically all of whom are specialists, do not stress too much their own intense interests in a narrow field but present rather the fundamentals underlying all specialization. This same caution must be applied to the so-called preclinical fields. We must achieve a sufficiently strong unification which cannot be overbalanced or masked completely by later training in restricted areas. We must emphasize the basic training fundamentals both for general practice and specialization. We must help change the attitude of the public toward the contribution of the well-trained practitioner, for this is a crucial factor in determining his status. We must reeducate the public while we are educating the students in the position of dignity and respect which should be accorded to the family physician because of the necessity of his function and the value of his services to the general public.

At the Chicago Medical School we are endeavoring to supply the kind of education that should serve as the basis for general practice as well as later specialization. We try to achieve integration by introducing the student from his very first day in school to the problems of clinical medicine and the application of his basic science knowledge to the healing of the sick. During the entire freshman year the students regularly have a "correlative symposium" which shows them exactly how the knowledge and discoveries in anatomy, physiology, biochemistry, etc. are applied to the clinical problems and contribute to the care and understanding of patients and disease. This effort also shows the students how clinical studies and problems may influence the advances in the basic sciences. The training offered by the department of psychiatry throughout the freshman year serves to direct the students toward an understanding of the emotional, environmental, economic and social factors that distinguish a "patient" from a "disease" and an "individual" from a "case". In both the freshman and sophomore years a series of lectures and demonstrations with patients serves as an "Introduction to Clinical Medicine" and allows for greater integration with the basic sciences as well as pre-viewing the work of the clinical years. In these latter, intimate first-hand contact with patients, both in a large charity hospital and in a private community hospital is the order of the day.

We have for some years at the Chicago Medical School had a twelve-month sophomore year and a twelve-month junior year in addition to the usual nine-month freshman and senior years. This extra time has made possible a broadening of the program so that in addition to the extensive ward and dispensary clerkships, the students may receive sufficient instruction in the basic principles of each of the specialties so that an acquaintance and an understanding in both depth and breadth can be achieved. To prepare the student for the treatment of the whole man is the aim of medical education. Time is necessary to achieve this end. We have organized our dispensary into the usual general and specialty clinics but we also have an "admittance clinic" where all patients are first seen by a diagnostic team consisting of internists and psychiatrists. This is one of our most academically profitable teaching clinics and emphasizes to the students the necessity of considering the patient as a total human being in this complex social and physical world. The student is trained to understand as many factors as possible about these patients, some of whom will need hospitalization while others may be helped and reassured with the clinic visits alone.

Some schools have adopted extensive preceptorships where students are sent out for varying periods of time into the community to serve with a practicing physician. While the aims of such programs are good and much beneficial training may result from them, they are not without possible detrimental effects. There is no doubt that close individual contact with a good physician and teacher can be a most effective teaching method. The danger in the widespread use of preceptorships lies in the difficulties of selection and securing of the right kind of men for this job. Much time may be wasted by students and harmful habits learned if their preceptor is not of the very highest caliber, both personally and professionally. There is also inherent in this system the possibility of exploitation of the student for rendering service not associated with any real learning opportunity. We feel that the best results can be achieved if we concentrate our energies on supplying the best possible faculty at the school and affiliated hospitals. We believe it is not necessary to use the preceptor system if care is exercised to supply the right kind of teachers, vitally interested in serving in a responsible fashion the academic needs of the school. We have achieved this in part through the extensive use of full-time clinical teachers whose entire energies and interests are devoted to the goal of medical education and the advancement of medical science. In our school and hospital program we emphasize the personal nature of medical care and the full consideration of the patient as a sick human being seeking help from the physician. We also have on our staff many successful private practitioners who have a genuine interest in teaching and who make a voluntary contribution of much time and effort to the work of the school. A blending on the school staff of full-time academic men in both the clinical and preclinical areas with the private practitioners of wide experience enables us to give our students a well-rounded medical concept and a broad competent and thorough training preparatory to the general practice of medicine or further specialty training. This plan of instruction is eminently suited to the task of achieving a clear, organized, comprehensive idea of the general body of medical knowledge, skill and responsibility. We believe the student cannot learn all there is to know about medicine in his years in school and that it is our task to prepare him effectively to have both desire and urge to continue his education throughout his professional life. If the student can achieve intellectual and emotional maturity along with the basic principles and knowledge of the various techniques necessary for medical skill during his school years, we will be fully repaid for our efforts.

The field of medicine is so broad that the casual postgraduate training of a general practitioner must be inadequate in at least some and probably all specialties. General practice varies considerably from one community to another with respect to the availability or proximity of specialty help. There are, however, what with improved means of transportation and extended hospital and clinic facilities, few communities which will not have access to surgeons and obstetricians in the future. These fields, (surgery in particular), often require such highly specialized techniques that they should be deemphasized in the postgraduate training of the general practitioner in favor of greater emphasis on internal medicine, pediatrics, and psychiatry. Training in psychiatry for the general practitioner should stress environmental factors and should be limited to the simple basic concepts of neuroses with special reference to psychiatric problems in the presence of organic disease and somatic responses to emotional stress. A relatively small amount of training in emergency surgery and general principles of modern surgery designed to equip the general practitioner to handle accidents, until the patient can have the benefits of specialty care, is desirable. For the really well trained practitioner a general knowledge of the various specialties and his own limitations in these areas is essential. Formal postgraduate training of the general practitioner should be at least as extensive as the training of most specialists and should, extend for three years past the internship. This period should be devoted primarily to internal medicine, psychiatry, pediatrics, obstetrics and to head and neck specialties. A special Board should be established for certification of "general specialists" in the field of general practice.

Beyond the formal period of medical school and hospital house-officership, the opportunities for advancing of the general practitioner are today often rather haphazard and sketchy. In

many areas he must still depend largely on his own initiative. It is high time that a more orderly, responsible and rational program of further training for general practitioners be worked out. There exist at present competing efforts to serve the general practitioner which often only lull him into a false sense of advancement. There should be rather a unification of efforts that will allow supplementing the more formal educational experiences of school and hospital. These various efforts should complement each other rather than try to compete with or outdo each other in gaining the attention of the busy practitioner. The general practitioner by the very nature of his work needs an unusually broad knowledge of medicine and is often so busy and so removed from training centers that further advancement is difficult. In some communities the general practitioners are still practicing much the same medicine they learned in their student days. Real efforts must be made to put the general practitioner who is not connected with a medical center in better touch with advancing science. The medical schools are more than willing to contribute in this effort, but they must do so only insofar as they do not sacrifice their undergraduate programs. The serious efforts made over the last twenty-five years by some universities and state medical societies and other groups to bring the best current techniques and advancements to the doctor in his own community have yielded some good results so far as they have gone. Much study and effort is still necessary, however, to provide efficiently more systematic postgraduate training for general practitioners.

Recent wide-spread study in mass education techniques can easily be applied to the continuing education of the physician. Through the coordinated use of local instructors, movies, live television over extensive closed systems or through open telecasts, and the use of television recordings, significant advances in communication and teaching techniques have been achieved. In many instances television instruction not only brought in new avenues of learning but actually were found to be better than teaching by local instructors. In a recent study by the Navy half of the students learned more through televised demonstrations than through actual contact with the teacher. The television camera can visualize the field of an operation, for instance, to a large number of observers all of whom get a better view than even the assistants to the surgeon at the actual site of the operation. In telecasts the teaching efforts do not necessarily have to be limited geographically. And since large areas can be served there is a greater opportunity of securing the services of some of the best teachers in a given field. Clinical conferences may even be held with participants stationed in different parts of the country. One is staggered by the magnitude of the opportunities that may be offered through the medium of colored television.

The attitude of the public toward the general practitioner will depend to a large extent on the actual value it receives from him. This attitude can be profoundly influenced by the educational efforts of the schools and the medical profession both on the general practitioner himself and on the public which assigns him his place in society. The opportunity before us is both challenging and inspiring. We must not fail.

Pathophysiology of Jaundice

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Jaundice is not a disease but a symptom. It is due to an excess accumulation of bilirubin in the blood, body fluids, and tissues, which is responsible for the visible yellow discoloration of the skin and mucous membranes.

It is worthwhile to remember that occasionally a diet rich in carrots may give the skin and serum a peculiar yellow tinge (carotinemia) and that atabrin and picric acid, the latter sometimes used by malingerers, may produce a pseudoicterus. In these conditions, the concentration of bilirubin in the blood is normal, and there is no deviation in the bile pigment metabolism.

In order to understand the mechanisms leading to an excess accumulation of bilirubin in the blood, a brief review of the normal bile pigment metabolism is necessary. Although all phases of this metabolism are not completely understood, some basic facts are accepted as being useful in clinical considerations.

Bilirubin is an iron-free waste product of hemoglobin, derived from aging and disintegrating red blood cells. It is formed by the cells of the bone marrow, spleen, and other reticuloendothelial tissues. Released into the circulation, bilirubin becomes attached to an alpha globulin of the serum, and is present in the normal blood in a concentration of 0.8 to 1.20 mg. per cent. As a waste product without useful function in the economy of the body, it is excreted by the liver into the biliary system, and then into the duodenum.

It was demonstrated by Van den Bergh that bilirubin normally present in the blood, because of its attachment to a protein molecule, does not react with the diazo reagent unless alcohol is added. This bilirubin was named, therefore, the *indirect reacting bilirubin*. Due to its complex molecular structure, it cannot pass the glomerular filter, is never found in the urine, and diffuses into the tissues only with difficulty. Brought to the liver, it is removed from the blood by the parenchymal cells in the manner of a threshold substance, and excreted into the biliary capillaries. During this passage, the chemical character of the pigment is changed by a mechanism whose nature is not completely understood. Whether the bilirubin is split away from the protein molecule, or whether a new, even more complicated compound, a sodium bilirubinate with a loosely attached protein molecule is formed, is not definitely known. The end effect, however, is that the bilirubin excreted by the liver cells into the bile reacts with the diazo reagent without addition of alcohol. This is the so-called *direct reacting bilirubin*. The direct bilirubin has the ability to pass the kidney filter and diffuse easily into the tissues. It is present only in minimal amount in the blood, and a level above 0.2 mg.% signifies liver disturbance.

The bilirubin excreted into the intestine is reduced to urobilinogen by bacterial action. A part of this urobilinogen is oxidized to coprobilinogen and coprobilin, and is excreted in the stool as the coloring matter of the feces; the rest is subjected to the entero-hepatic circulation, reabsorbed by the intestines, and carried back to the liver by the portal circulation. Most of this urobilinogen is re-excreted or reutilized by the parenchymal cells of the liver in an unknown fashion. A small amount escapes into the general circulation, and, being a derivative of the direct bilirubin, is eliminated freely by the kidney.

Under normal circumstances, the stool does not contain bilirubin. Only in severe diarrheas, or after sterilization of the bowel by oral antibiotics, may bilirubin appear in the feces.

The formation and excretion of bilirubin is

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Presented at the Postgraduate Conference, Dixon, Ill., April 17, 1952.

a never-ending process, and the factors controlling it have to be in perfect balance in order to avoid an excess accumulation of the pigment in the blood.

There are several known pathological mechanisms which may interfere with the normal pigment metabolism, and produce icterus. They may operate *before, in,* and *behind* the liver cells. These mechanisms are:

1. Bilirubin becomes a high threshold substance.
2. Excess formation of bilirubin, and inability of the normal liver cells to excrete it as rapidly as it is formed.
3. Mechanical blockage of the bile flow into the duodenum.
4. Disarrangement and damage to the liver cells with impairment of the uptake and excretion of bilirubin.
5. A combination of any of the above-mentioned mechanisms.

The first mechanism has been found to be operating in some relatively rare cases of a congenital condition known as familial nonhemolytic icterus, or constitutional hyperbilirubinemia. This type of bilirubinemia is believed to be due to a disfunction in the liver excretory threshold for bilirubin, and not to a damage of the liver cells. The individuals with this type of disturbance are in good health. Their livers and spleens are not enlarged, and there is no evidence of hemolysis. The bilirubin in the blood is of the indirect type. There is no bilirubin in the urine, and the urobilinogen in the stool and urine is normal.

It may be important to differentiate this condition from a hyperbilirubinemia persisting in some cases of infectious and toxic hepatitis, even after clinical recovery.

Overproduction of bilirubin, in most cases due to an excessive breakdown of erythrocytes, is a very common mechanism of icterus. There is a great variety of causes for a severe hemolysis: protozoa (malaria, Oroya fever); bacteria (Bacillus welchii, streptococcus hemolyticus, or viridans); chemical agents (phenylhydrazine, phenol, benzin, arsenic, lead, gold, etc.); allergy (favism, sensitivity to sulfa drugs); hemolysis of the immune body type reaction (erythroblastosis, paroxysmal hemoglobinuria, mismatched transfusion); hemolysis due to congenital defects of the red blood cells (familial hemolytic icterus, sickle cell anemia, Cooley's anemia); hemolysis in infarcts and hematomas; and finally, hemolysis produced by unknown mechanisms (icterus neonatorum, pernicious anemia, Hodgkins disease, leukemias, carcinomatosis, etc.). In all of these conditions, the liver is not able to dispose of the increased amount of bilirubin as rapidly as it is formed. Excess indirect bilirubin accumulates in the circulation. The large amount of bilirubin excreted into the intestine leads to the formation of great quantities of uro- and stercobilinogen, with a consequent darkening of the stool. At the same time, more urobilinogen is subjected to the entero-hepatic circulation, and a large fraction of it bypasses the liver cells, enters the circulation, and appears in the urine. The bilirubin present in the blood, being of the indirect type, is not excreted by the kidney, and is not found in the urine. Because of the difficulties in diffusion, the discoloration of the skin and mucous membranes is light, and the icterus mild. The increased amount of bilirubin in the bile favors stone formation in chronic hemolytic anemias.

Mechanical blockage of the bile flow, another common mechanism in production of icterus, may be due to extra- and intrahepatic factors. The extrahepatic obstruction may be complete (mostly produced by malignant lesions), or incomplete (due to the passage or to a shifting common duct stone, to strictures, or to inflammation of the bile ducts). Intrahepatic obstruction occurs in some phases of hepatitis, and produces the same type of deviation in the pigment metabolism as the extrahepatic obstruction. Bilirubin in these conditions is formed and excreted by the liver cells at a normal rate. Because of the obstruction, bile cannot enter the intestine, and accumulates in the biliary system.

The increased back pressure damages the biliary capillaries, direct bilirubin escapes into the periportal spaces, and enters the general circulation via the lymphatics. Excess direct bilirubin accumulates in the blood, and, being able to pass the kidney filter, appears in the urine, staining it deeply. As no bile enters the intestine, no urobilinogen or coprobilinogen is formed, and none of it appears in the urine. The stool is light and clay-colored. Bilirubin from the blood diffuses easily into the subcutis and submucosa in these conditions, and the

jaundice is, therefore, very pronounced. In incomplete, or malignant obstruction, the mentioned findings become prominent and irreversible. In benign obstructions, periods of complete or almost complete blockage alternate with periods of release. Correspondingly, there are alternating changes in the amount of bilirubin and urobilinogen in the blood, urine, and stool.

The inability of the liver cell to take up and excrete bilirubin is a further mechanism in formation of jaundice. This type of jaundice is usually accompanied by an impairment of other important functions of the liver, and is due to damage and disarrangement of the liver cells. A great variety of agents are capable of producing these structural changes: toxic substances like chloroform, chlorinated hydrocarbons, cinchophen, etc.; and infections, of which those due to the viruses of yellow fever, infectious, and hemologous serum hepatitis, are the most important.

The deviation of the pigment metabolism in these conditions is as follows: The indirect bilirubin, being formed in normal amounts, is taken up by the healthy liver cells and excreted as direct bilirubin. Part of this bilirubin reaches the intestine and is converted to uro- and coprobilinogen. Another part of the bilirubin, because of the disruption or damage to some liver cells, re-enters the general circulation via the sinusoids. Direct and indirect bilirubin are now present in the blood, and their relative amounts are determined by the degree of the liver damage produced by the acting agent. This agent may occasionally produce hemolysis, or in some phases of the disease, so severely damage the liver cells, that they are not even able to take up the normal amount of indirect bilirubin. The indirect bilirubin will increase in the blood to high levels. The direct bilirubin present in the circulation passes the kidney filter, and is excreted in the urine. The returned urobilinogen is not re-utilized by the damaged liver cells; it escapes into the circulation, and appears in the urine.

In some cases of hepatitis, especially in those produced by the viruses, a characteristic pathological feature of the disease — the periportal inflammatory reaction — may be severe enough to obstruct the intrahepatic biliary capillaries. The deviation of the pigment metabolism in these cases will have the same characteristics as in extrahepatic obstructive jaundice.

Considering the mechanisms producing jaundice from a pathologic-anatomical point of view, it is obvious that most of them may operate in pure form for only a brief period of time. Anemia in hemolysis, back pressure in extrahepatic jaundice, and toxemias in hepatitis may change the characteristics of the primary mechanism very quickly. Therefore, only a careful history with regard to a possible contact with a hepatotoxic agent, a sensible interpretation of symptoms, repeated studies of bilirubin in the blood and urine, and of urobilinogen in the urine and stool, a critical evaluation of liver function tests, and, occasionally, a liver biopsy, will help us to make a correct diagnosis in about 80 percent of the cases of jaundice.

CASE RECORDS OF THE COOK COUNTY HOSPITAL

KARL MEYER, LEO M. ZIMMERMAN, DEPT. EDITORS

Fatty Inguinal Hernia

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Fatty inguinal hernia simulating indirect inguinal hernia is uncommon. The literature reports only two cases of fatty inguinal hernias during the last twenty years. Lillie & Waugh[1] reported one case of a unilateral fatty inguinal hernia and the senior authors[2] have recently reported a case of bilateral fatty inguinal hernias.

It is fairly common to find small fatty masses during surgery for indirect inguinal hernia. Our findings of small fatty masses approximate the same percentage as reported by Dr. Speed[3], who found fatty masses in 47.4% of his cases.

The fatty inguinal hernia masses may arise either from the preperitoneal fat or may descend with the testes; may be lobulated and covered with a peritoneal-like sac and receive their blood supply from above, or the masses may be broad originating behind the cord at the internal ring and bulge out along the posterior aspect of the cord.

Although Watson[4] stated that fatty hernias do not change in size, are irreducible and do not transmit an impulse on coughing, in our cases we have found that these fatty hernias may increase in size, are reducible and produce an impulse on coughing.

We wish to present a case of a unilateral fatty inguinal hernia simulating an indirect inguinal hernia associated with a hydrocele of the cord.

Mr. D. L. age 39, was admitted to our ward stating that he had a "rupture on the left side for a long time". There had been no pain or obstructive symptoms.

Examination revealed an obese male with a normal temperature, pulse and respiratory rate. His blood pressure was 108/78. An irreducible mass about 7 cms. in diameter was present in the left scrotal sac. This mass was cystic and not tender. The left testicle was not palpable. Examination of the left external ring revealed a firm mass which was believed to be an indirect inguinal hernia. The right inguinal region was negative. A diagnosis of a left inguinal hernia and a left hydrocele of the cord was made and surgery advised.

A left inguinal incision was made, the aponeurosis of the external oblique muscle opened and the cord isolated. A hydrocele of the cord was found and removed. Proximal to the hydrocele a fatty mass measuring about 5 x 2 cms. was found attached to the cord structures and projecting somewhat beyond the external ring. The proximal portion of this fatty mass was in continuity with the retroperitoneal fat. There was no evidence of a peritoneal covering of this fat mass. The fat mass was separated from the cord structures and a high ligation done. Further investigation failed to show any evidence of an indirect inguinal hernia. A Ferguson repair was then done.

The patient made an uneventful recovery.

CONCLUSION

Fatty inguinal hernias are rare and must be considered in the differential diagnosis of indirect inguinal hernia. They simulate indirect inguinal hernia in that they may increase in size, can be reduced and transmit an impulse on coughing.

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POLYPS OF THE G-I TRACT

The management of isolated polyps when found by x-ray examination has many pitfalls. Confirmatory x-ray examinations are always insisted upon before surgery. The bowel is then prepared by chemotherapeutic or antibiotic agents following thorough saline cleansing. The use of terramycin per os for 48 hours after purging has proved adequate. Transcolonic excision may then be carried out with safety in most instances. Exact localization of the polyp after opening the abdomen may be a problem. With a clean bowel, palpation between the flattened fingers should be sufficient but in an obese individual with tense epiploic appendages, this may be hopelessly inadequate. The Cameron light is of assistance in canvassing the bowel by transillumination. Colotomy in the general region indicated by the x-ray films may be indicated and justifiable. It is my custom also, because of the frequent finding of adjacent polyps to have a sterile sigmoidoscope available to explore transabdominally the adjoining segments of bowel. With pedunculated polyps, simple excision within the lumen is sufficient. With a sessile lesion or a thickened pedicle, wedge resection may be preferable. Where multiple polyps are found closely associated, a sleeve resection and end-to-end anastomosis is recommended. *Herbert M. Giffin, M.D., Polyps Of The Gastrointestinal Tract. Med. Ann. District of Columbia, Oct. 1952.*

CASE REPORTS

Unusual Postoperative Ventral Hernia

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Mrs. E. D., a housewife 59 years of age and weighing 160 pounds entered Holy Cross Hospital August 17, 1951 complaining of pain in the lower abdomen and frequent vomiting in the preceding 24 hours. She had a midline hernia protruding above a pendulous obese abdomen. She had attempted, unsuccessfully and repeatedly to reduce the hernia in the past 24 hours. She had a bowel movement shortly before the hernial content became strangulated but not thereafter. The patient was not especially concerned, at first, about her inability to reduce the hernia. She had had it for 14 years and had often replaced the hernial content into the abdomen. It was only after she developed abdominal pain and vomiting that she called a physician.

The surgical history of this patient is pertinent to her condition in her most recent hospitalization. At the age of 21 years she had an appendectomy performed through a right rectus incision. Her recovery was rapid and her abdominal wall developed a competent scar. At age 39 she had a right oophorectomy for ovarian cyst performed through a midline incision. The wound healed satisfactorily but the scar became thin and within a short time she developed a large ventral hernia. She bore the inconvenience of this hernia for five years and in the interval became markedly obese.

At age 44 she decided to have the hernia repaired and was operated upon at the Cook County Hospital. The immediate results were gratifying but within a year a midline low hernia started. As this enlarged the patient learned how to reduce it by posture and external pressure and sought help only when alarming symptoms appeared.

The patient was operated under local anesthesia. After incision of the skin and subcutaneous fat from the umbilicus to the pubic symphysis, a thin-walled hernial sac was en-

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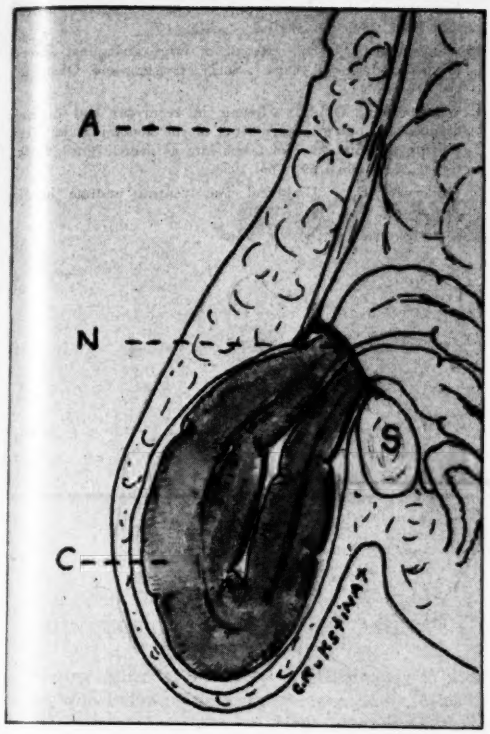

Figure 1. Illustrating at A, the abdominal wall; at N, the neck of the hernial sac; at S, the symphysis pubis and at C, the incarcerated sigmoid part of the colon within the hernial sac.

countered in front of the symphysis pubis. (See Figure 1.) The sac contained thirty cubic centimeters of clear yellow liquid and eight inches of incarcerated sigmoid colon which had herniated through an opening between the transversalis fascia and symphysis pubis. The abdomen was entered through the upper half of the incision and a tight constricting band was found at the neck of the hernial pouch. This band had indented the bowel it encircled and was quickly cut. The bowel, purple and distended, returned to its normal color when the ring was severed. The bowel was then returned to the abdomen and the hernial sac removed. The wall was closed in layers to obliterate the space left after the hernia was reduced and a Penrose drain was inserted.

DISCUSSION

The diagnosis of hernia with a strangulated content was not difficult to make in this instance. The location of the hernia was unusual and its content was exceptional in the experience of the surgeon (F. J. S.). There is room for conjecture as to whether the sigmoid colon had entered the hernia space on the numerous occasions on which the patient had reduced the hernia herself. In reducible hernias small intestine and omentum are usually found. Large bowel is most frequently found in irreducible hernia.

The site of the hernia ring was most unusually low and close to a region of secure fascial attachment. The pendulous and protruding parts of the abdominal wall were apparently the greatest factor in enlarging the hernia, once it had formed. It is also conceivable that the previous operation for ventral hernia was meticulously performed by overlapping the fascial flaps in the upper part of the rupture where tissue was abundant and pliable. The dense fascial close to the symphysis would be less pliant and could not be similarly repaired. This type of repair could even be the basis of the hernia here encountered. The lower edge of the imbricated part of the fascia would form a firm scar. The portion near the symphysis would not share in the new vascularity of this repair and would heal more slowly and imperfectly. The constantly increasing weight of the patient furnished additional intra-abdominal pressure to press against the weak area of the lower abdominal wall and thus the hernia resulted.

Watson[1] describes the etiologic factors pictured above. He indicates that incisional hernia occurs in 2 to 5 per cent of all clean abdominal operations and in 15 to 30 per cent of infected and drainage cases. Benjamin[2] in 1941, found 21.6 per cent of hernias following operations for appendicitis, and 11.2 per cent after operations on the gallbladder. Especially notable is his observation that there was a 36 per cent recurrence rate in operations for incisional hernia.

The last problem has been dealt with in a most elaborate fashion by Wangensteen.[3,4] He has used the iliotibial tract of fascial lata pedicled on the tensor fasciae femoris muscle as a graft to repair large and recurrent ventral hernias. Another method has been devised by Mahorner[5] in which the tissues are first overlapped longitudinally by interrupted silk sutures. Ther fascia strips are placed transversely in the wound and sutured to the anterior rectus fascia near the linea semilunaris. These strips relieve tension on the wound.

SUMMARY

A case of strangulation of the sigmoid part of the colon in a ventral hernia is presented. The etiology and treatment of incisional hernia is reviewed in the aspects pertinent to the problem here encountered.

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NEW IDEAS ON THE SPLEEN

Recently Johansen has shown that the spleen, instead of secreting a hormone which inhibits the bone marrow, "sequestres" a substance which normally promotes the function of the bone marrow. In patients with hypersplenism the circulating serum contains a decreased amount of this factor, which soon returns to normal quantities after splenectomy. The spleen of these patients contains an excessive amount of this factor, because when pressed juice of the spleen was used as a nutrient medium in bone marrow cultures there was a 15 per cent increase in the activity of the marrow when compared to normal marrow cultures with serum used as a nutrient medium. "Since it has not been possible to demonstrate the presence of any substance inhibiting maturation, in my opinion this shows that the splenogenic inhibition of the bone marrow in certain clinical pictures is wholly or in part due to a pathologically increased resorption in the spleen of one or more substances which are normally present in the blood and which promote maturation in the bone marrow." *Bernard E. Nunez, M.D. Unusual Diseases Of The Spleen. Med. Ann. District of Columbia, Oct. 1952.*

COUNCIL MEETING MINUTES

MINUTES OF OCTOBER MEETING OF THE COUNCIL

Meeting called to order by the chairman, F. Lee Stone, with following present: Sweeney, Lewis, Muller, Kirby, Camp, Lundholm, O'Neill, Stone, Oldfield, Vaughn, Hesseltine, Blair, Reisch, Newcomb, Goodyear, English, Montgomery, Fullerton, Hellmuth, Limarzi, Hoeltgen, Hedge, Wolff, H. K. Scatliff, I. H. Neece, J. O. Firth, Tom Kirkwood, White, Hopkins, Coleman, Cross, F. E. Bollaert, Leary, Neal and Frances Zimmer. Minutes of last meeting were approved, as sent to members. Secretary had mailed his regular report to members, and gave a supplementary report. He stated that 12 years ago on this date, Roland Cross became Director of the State Department of Public Health, filled the office longer than any other Director. Referred to unusual type of cooperation between this State Department and the Medical Profession of Illinois, as well as this Council. Unfortunately this type of cooperation does not exist in all states. Secretary also told of Dr. Stone's appearance in Detroit as a witness at the hearing of the Committee on the Health Needs of the Nation, this held on September 23. Usual Financial Report was likewise presented to the Council. Secretary directed to send appropriate letter of congratulations and best wishes to Cross, and to tell him of the gratitude of this Society for the fine work he has done in the State Health Department.

Sweeney, reporting as President, told of the many meetings he had attended, and of other invitations he could not accept on account of other commitments. Recommended that the Council designate one member to attend the regular meetings of the Illinois Chamber of Commerce, the Society being a participating organization. Believed we should become more familiar with the activities of this state wide organization.

Lewis reported as President-Elect, giving a statement on his own activities, meetings attended, and future invitations. Stone reported as Chairman of the Council, telling of the interesting meeting at Mt. Carroll, when the entire community paid tribute to three elderly physicians who had jointly given 167 years of service to this small city and surrounding area. Told of his appearance before the Committee on the Health Needs of the Nation, at which he read a 10 minute outline of activities in Illinois. Speakers from individual states only allowed that amount of time, which was completely inadequate to give any expression of health conditions or possible needs for an entire state.

Blair was asked by the Executive Committee at a meeting the previous evening, to outline the aims and objectives of the movement spearheaded by F. E. Bollaert of Moline, which had been widely publicized, and rather generally misquoted. Bollaert is anxious to have a definition of "fee splitting" given by the A.M.A. Judicial Council, which to date had not been given. The Principles of Medical Ethics fails to tell exactly what constitutes fee splitting, and this is what Bollaert and his friends want, a concise clarification of the subject. Bollaert had the support of the Rock Island County Society in the movement, following the reporting of the principles recently adopted by the Iowa State Medical Society.

Bollaert was given the floor and elaborated on the remarks of Blair, and he hoped the Council and State Medical Society would endeavor to get an official clarification on fee splitting from the Judicial Council. His questions: "what is fee splitting?—what is ethical and what is not ethical? When the patient knows two or more physicians participated in the care and each is entitled to remuneration, what difference is there between three fees paid in one check, and payment of

three seperate bills, individually?" No action was taken at this time.

Resolution submitted by Hopkins, as Chairman of Committee on Medical Service and Public Relations in which physicians throughout Illinois were requested to close their offices on election day and assist in getting people to the polls. Voters regardless of party affiliations should exercise their constitutional right to vote, and this year an all out effort to get out a large vote should be instituted. By proper action, the resolution was sent to all county societies for their own action, as desired.

Hopkins referred to the work of the Illinois Interprofessional Council of which Wayne Slaughter is chairman. They are having regular meetings, and it seems quite probable that a closer relationship will be developed among the several participating organizations. Leary and Neal also discussed some of the problems in their divisions of the Committee functions. Blair reporting as chairman of the Educational Committee reported that the TV health broadcasts would be back on the air the latter part of November. The kinoscope authorized by the Council is now available, and will be shown to the Council at the next meeting if desired, and time is available for its showing. Routine matters of the committee were presented in the report. Limarzi is still investigating the possible plans to teach technicians prothrombin consumption time laboratory technique. The Illinois Society of Pathologists has a committee on laboratory standards under the jurisdiction of Dr. Opal Hepler, of Northwestern University Medical School, Chicago 11, and any hospital can write to her for information relative to their classes or their services.

The Scientific Service Committee recently held a meeting and discussed its work for the next year. Invited speakers are restricted to members of this Society, Doctors of Philosophy and other scientists. Permission has been given however, for downstate societies to use speakers from St. Louis and Iowa City, if more conveniently located. A re-survey of county societies is under way and they hope to have an interesting report for publication in the near future. The revised list of speakers will be developed soon, and ready for publication. A report will be forthcoming at the next Council meeting on this subject. A physician recently wrote to many county societies offering his services, being willing to appear on programs at almost any time they desire it. They are urged to clear through the committee before an appearance before societies.

Coleman told of the meeting the previous evening, of the Medical Advisory Committee to the I.P.A.C. and many of the things which were discussed. Some of these were definitely controversial and a further and perhaps more complete report will soon be available. The committee although realizing they are dealing with people in extremely low income groups, are desirous of seeing they receive decent care, even though the rate must remain less than that received in private practice. The Advisory Committee to the United Mine Workers met recently in Springfield to consider plans for the continuance of their functions. Physicians are urged to restrict their charges within the adopted fee schedules, and the committee hopes to continue in its advisory functions for the mutual interests of the patients of the U.M.W.A. and the participating physicians.

Hellmuth told of the post graduate work under way, and proposed, the plans have been slowed down and are starting later this year. Efforts will be made to avoid conflicting dates of other societies and their meetings. Told of the plan to get public ambulance service in the Chicago Metropolitan area sponsored by the Institute of Medicine. This organization would like to have the expression of the Illinois State Medical Society and the Chicago Medical Society. By proper action, the Council indicated its interest in the proposal, which information would go to the Institute of Medicine.

Wolff reported as chairman of the Committee on Medical Economics, telling of the efforts to get regular articles in the Illinois Medical Journal. They now have a small backlog of articles which will be published monthly. The committee is anxious to have expressions from the Council and membership as a whole, on what type of articles they would prefer to have presented. Muller told of plans of the local groups for selecting all necessary committees to constitute the Committee on Arrangements for the 1953 annual meeting. The Auxiliary would like to have a fitting celebration of their 25th anniversary in 1953, and presently plan to have a big party on Tuesday evening, if that time will be made available for same.

Scatliff continued the report from the Auxiliary, he being chairman of the Liaison Committee from the State Medical Society. They are elated over the arrangement to have their session in the same hotel next year. Hesseltine told of the 25th anniversary celebration of the University of Chicago Clinics, he being the official representative from this Society. They had an excellent program which was well received. Cross gave his regular, highly interesting report of health conditions throughout Illinois. The tuberculosis program is going along fine; the 100 bed tuberculosis hospital in Mt. Vernon is now operating with a patient load of 96, only four below the maximum capacity. The Chicago hospital to be opened in the near future. Death rates from tuberculosis are steadily decreasing throughout the state.

Hoeltgen gave an interim progress report as chairman of the Committee on Nursing. The long report was attached to the minutes of the meeting, sent out from the Monmouth office to all members. He told of the survey under way on the nursing situation, and nursing needs over the state and nation in general. O'Neill, Montgomery and others discussed the increase in annual dues for 1953, the $20.00 increase to go into the Medical Educational Fund, to aid medical schools over the country, which can no longer operate from student income alone.

Although the By-laws of the Society make citizenship essential for membership in the Society, several societies in Illinois have overlooked this fact, and have taken in, illegally some who have not acquired citizenship. By proper action, the secretary was instructed to notify all

(*Continued on page* 64)

PATHOLOGY CONFERENCES

EDWIN F. HIRSCH, DEPARTMENT EDITOR

Mediastinal Carcinoma

J. C. Sherrick, M.D.
Wesley Memorial Hospital

CLINICAL HISTORY

This 56 year old white male was admitted to the hospital because of chest pain of one year's duration.

PRESENT ILLNESS: The patient was well until one year before admission when he noted a dull constant ache in the back that radiated to the front of the left side of his chest. Occasionally the pain radiated down the back and to the left arm, was persistent and gradually became more severe. There was no hoarseness, cough or dyspnea. About one month before admission x-ray of the chest revealed increased prominence of the arch of the aorta with moderate displacement of the trachea to the right. On oblique and lateral projections, there was a large retrotracheal homogeneous shadow with fairly sharply demarcated borders that displaced the trachea anteriorly and reduced its lumen to about half of normal. This mass exhibited slight pulsation. After the intravenous injection of 70% diodrast there was no unmistakable filling of the mass but a general increase in density of the retrotracheal mass was noted. There were also numerous small parenchymal calcifications above the third chondro-sternal junction in the right lung. No erosion of the ribs was seen.

PAST HISTORY: He had had frequent colds and pneumonia. A few small areas of increased density were noted in the upper lobe of the right lung 7 years ago. Serial x-rays showed no change in this infiltration. The family history was non-contributory.

PHYSICAL EXAMINATION: The temperature was 97 degrees F., pulse 100, respirations 20, and blood pressure 154/86 mm. Hg. The patient was a well developed and well nourished white male, not acutely ill. The neck was supple. There was no tracheal tug or distention of neck veins. The chest was clear. The superior mediastinal dullness was not widened. The heart was enlarged 1 cm. beyond the midaxillary line in the fifth interspace and 1.5 cm. to the right of the sternum. No thrills or murmurs were heard. The blood pressure levels were about the same in both arms, but the right peripheral pulse was slightly stronger. The abdomen was soft and no organs were palpated. Neurologic examination was normal.

LABORATORY EXAMINATION: The

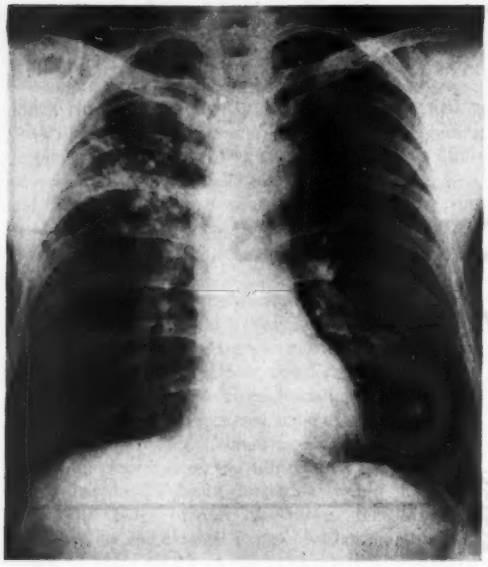

Figure 1. Chest x-ray 3 years before admission.

urinalysis was normal. The blood had 10 gm. of hemoglobin per 100 c.c. and 4,730,000 erythrocytes per Cu. mm. The white cell count was 9,600 with a normal differential. The blood Kahn was negative. A chest x-ray on admission revealed no change in the superior mediastinal mass. Bronchoscopy and sputum examination were not done.

On the second hospital day an operation was performed.

CLINICAL DISCUSSION

DR. FREDERICK W. MUNSON* — This 56 year old patient was admitted because of chest pain, sometimes in the back and sometimes down the left arm. The physical examination was essentially normal except for slight cardiac enlargement which was not confirmed by chest x-rays. The neurological examination was normal. Because of parenchymal infiltration in the upper lobe of the right lung, thought to be tuberculosis, the patient had been followed with chest x-rays which showed increasing mediastinal enlargement. This enlargement was localized to the upper mediastinum by the marked displacement of the trachea. The differential diagnosis of superior mediastinal masses essentially falls into two groups — tumor and aneurysm. The patient's Kahn was negative. I will ask Dr. Cannon to review the x-rays.

*Attending physician, Wesley Memorial Hospital.

DR. ABRAHAM H. CANNON: We have films going back 7 years, at which time there was infiltration in the right upper lung field. Over the years this lesion showed slight changes, but finally was stabilized three years ago. (Figure 1) However, we continued to take x-rays every 6 months and 18 months ago we began to notice a change in the region of the aortic arch. Three months later this had become larger and since then has remained approximately the same size. Six months ago we studied the mass a little more thoroughly (Figure 2 & 3). Lateral and oblique films show that this is a superior mediastinal mass which markedly displaces the trachea anteriorly and to the right. Diodrast was then injected and an angiogram was done. There was much debate in the department about the exact interpretation of the films, as you can see from the rather cautious interpretation given in the clinical history. The mass gives the impression of increasing in density after the intravenous administration of diodrast. Perhaps it increased somewhat less in density than an aneurysm usually does. Fluoroscopy does not give much help. Although the mass did show some pulsation we were not able to say whether it was an expansile or a transmitted pulsation. We also took a film of the abdomen. This gives us a fairly good view of the urinary tract. The right kidney is larger than normal and is

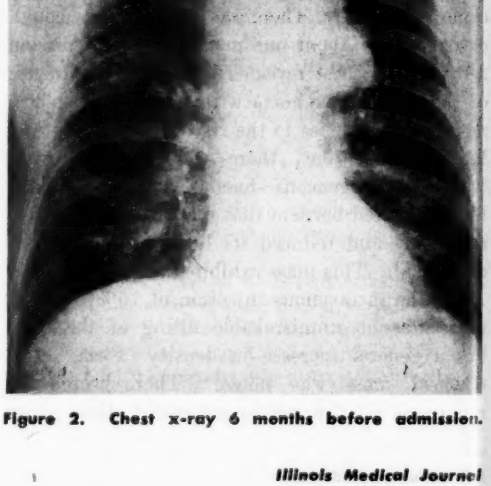

Figure 2. Chest x-ray 6 months before admission.

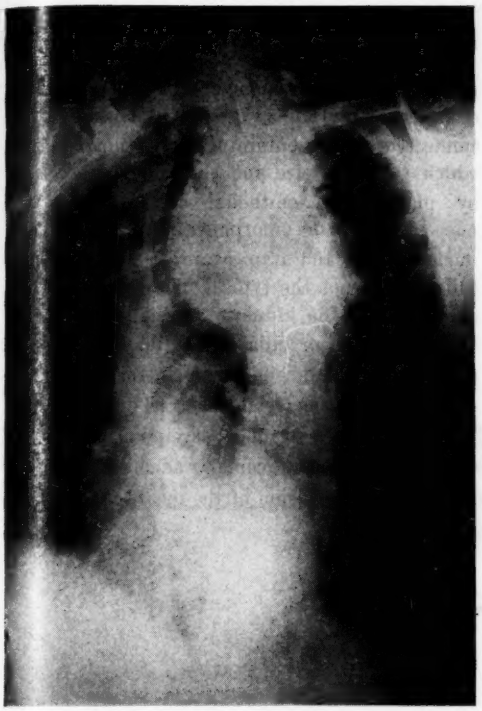

Figure 3. Oblique chest x-ray 6 months before admission.

elongated. The inferior calyx is distorted, although there is no definite erosion of the calyces. The impression is that of a spherical mass at the lower pole of the left kidney. The bladder has a peculiar shape, probably because of hypertrophy of the prostate.

DR. MUNSON: Since an aneurysm was not fully demonstrated, I will ignore it in my differential diagnosis, perhaps wrongly. The tumors to consider in this region include neurofibroma or neuroganglionoma, which are often found in the posterior mediastinum. The pain down the left arm would be consistent with such a tumor. Pericardial cysts are sometimes found in the mediastinum. Substernal thyroid may also be found in this location, but because of absence of anything above the mediastinum, we can eliminate that. Other tumors, such as lymphoma, are more apt to be associated with enlargement of the hilus of the lung. Thymoma must be considered. Because of the abdominal film one must consider the rather unusual possibility of secondary carcinoma from a kidney tumor. My first diagnosis is carcinoma of the lung with unusual extension to the mediastinum and my second diagnosis would be carcinoma of the kidney with metastases.

DR. JEROME R. HEAD: We first saw this patient 8 years ago and believed that he had pulmonary tuberculosis, although his sputum and gastric washings were negative for acid fast bacilli by guinea pig inoculation. The lesion contracted and healed after 6 months in the sanitorium, and on routine check-ups we noted this enlargement of the mediastinum. Our differential diagnosis was much the same as Dr. Munson's. However, we thought well enough of the possibility of aneurysm to operate on the patient and were prepared to introduce wire if necessary. In general, in these cases, we depend on the Kahn test; if it is positive we make the diagnosis of aneurysm and if negative we believe that tumor is the best possibility.

DR. ARTHUR E. MAHLE: This sounds more to me like carcinoma of the kidney with metastases to the mediastinum. Was the blood pressure the same in both arms?

DR. THOMAS C. LAIPPLY: The blood

Figure 4. Photomicrograph of tumor.

pressure was the same in both arms.

DR. EDWARD AVERY: A single metastasis to the mediastinum would be extremely rare. There should be more paraaortic lymph node involvement.

DR. PATRICK RILEY: Is not the retrotracheal position of the mass unusual for aneurysm of the aorta?

DR. HEAD: According to Osler an aneurysm can do anything. This aneurysm was on the left side and in this case a saccular aneurysm might go behind the trachea.

CLINICAL DIAGNOSIS

Aortic aneurysm.

DR. MUNSON'S DIAGNOSIS

Carcinoma of lung with extension to the mediastinum.

ANATOMICAL DIAGNOSIS

Poorly differentiated adenocarcinoma.

PATHOLOGICAL DISCUSSION

DR. THOMAS C. LAIPPLY: The tissue received was from the mediastinal mass. Microscopic examination (Figure 4) showed fibrous connective tissue containing many tumor glands, which varied in size and shape, and were lined by pleomorphic epithelial cells. There was marked nuclear pleomorphism with many bizarre nuclear forms and atypical mitoses. Microscopically this is not the typical picture of clear cell carcinoma of the kidney. Special stains failed to show mucin or cilia in the tumor. The patient is still alive and the primary site of the tumor has not been established. This tumor may be secondary to a primary carcinoma of the kidney. Nevertheless, primary adenocarcinoma of the lung with invasion of the mediastinum seems more likely.

THE OTHER GUY

"An American soldier, wounded on the battlefield in the far East, owes his life to the Japanese scientist Kitasato, who isolated the bacillus of tetanus. A Russian soldier saved by a blood transfusion is indebted to Landsteiner, an Austrian. A German is shielded from typhoid fever with the help of a Russian, Mechnikoff. A Dutch marine in the East Indies is protected from malaria because of the experiments of an Italian, Grassi; while a British aviator in North Africa escapes death from a surgical infection because, through the discoveries of a Frenchman, Pasteur, and a German, Koch, a new technique was elaborated. In peace as in war we are beneficiaries of knowledge contributed by men of every nationality. Our children are protected from diphtheria by what a Japanese and a German did; they are protected from smallpox by the work of an Englishman; they are saved from rabies because of a Frenchman; they are cured of pellagra through the researches of an Austrian. From birth to death they are surrounded by an invisible host, the spirits of men who never thought in terms of flags and boundary lines, and who never served a lesser loyalty than the welfare of mankind." *W. R. Wallace, What Makes The Profession Of Medicine Great. (Quoted from the Rockefeller Foundation Report for 1942.). South. Med. & Surg. Mar., 1952.*

NEWS OF THE STATE

CHAMPAIGN

Social Affair.—The Champaign County Medical Society and its Woman's Auxiliary held separate business meetings at the Hotel Tilden Hall, Champaign, December 11, but met together later for dinner and a social evening. Entertainment included an exchange of gifts and bingo.

COOK

Warren Cole Opens Student Lecture Series.—Warren Cole, M. D., professor of surgery, University of Illinois College of Medicine, gave the first lecture January 6, in the series sponsored by the Student American Medical Association at the Chicago Medical School. Dr. Cole's subject was "Diseases of the Gallbladder."

Appointments at Illinois.—Appointment of Drs. Lewis C. Hitchner, Grant C. Johnson, Walter S. Moos, and Max E. Rafelson, to the faculty of the University of Illinois College of Medicine with the rank of assistant professor has been approved by the Board of Trustees.

Dr. Hitchner will serve as clinical assistant professor of anesthesiology. He presently is associated with the Evangelical Hospital of Chicago, and is president of the Illinois Society of Anesthesiologists.

Dr. Johnson will have the rank of assistant professor of pathology in the College of Medicine, and assistant pathologist in the Research and Educational Hospitals, beginning Feb. 1, 1953. He presently serves as a captain in the U. S. Army Medical Corps, and is assigned to the 3rd Army Medical Laboratory at Fort McPherson, Ga.

Dr. Moos will serve with the rank of assistant professor of radiology and radiation physicist in the College of Medicine. Prior to joining the University of Illinois faculty in November, he held an United States Public Health Service fellowship at the National Cancer Institute, Bethesda, Md.

Dr. Rafelson has been appointed with the rank of assistant professor of biological chemistry, beginning Feb. 1, 1953, when he returns from Sweden. He presently is a post-doctoral research fellow of the U. S. Public Health Service.

Dr. Bucy Given New Honor.—Paul C. Bucy, M.D., professor of neurology and neurological surgery at the University of Illinois, will be the first in a series of distinguished surgeons who will occupy the newly established George A. Ball visiting professorship in surgery at the Indiana University School of Medicine.

Dean John D. VanNuys of Indiana has announced that Dr. Bucy will spend each Friday during the present academic year on the Indianapolis campus. Dr. Bucy will take an active part in the surgery teaching program for students as well as post-graduate sessions for surgeons in the state.

Three of Indiana's medical faculty are former students of Dr. Bucy, having served as residents at Chicago Memorial Hospital. They are Robert F. Heimburger, M.D., who is in charge of neurological surgery; John F. Russell, M.D., a member of the Department of Neurological Surgery; and L. W. Freeman, M.D., who is in charge of surgical research.

The new chair in surgery was established by the Riley Memorial Association in honor of the Muncie, Ind., philanthropist for whom it is named.

Grants for Research.—The Chicago Medical

School has recently received two new research grants totalling $10,508. From the National Heart Institute $5,508 goes to Dr. Peter Gaberman, principal investigator, and personnel consisting of Drs. Donald H. Atlas and Harry F. Weisberg, for studies of "The Mechanism of Congestive Failure." Dr. Philippe Shubik, with Dr. A. Robert Goldfarb as collaborator, has been awarded $5,000, which is a renewal and increase over last year, from the Atomic Energy Commission for "Study of the Carcinogenic Effect of Beta Radiations."

Personal.—Mark T. Goldstine celebrated his fiftieth anniversary as a member of the medical staff at Memorial Hospital. —Dr. Michael H. Ebert, Chicago, was elected president of the American Academy of Dermatology and Syphilology recently.

Special Society Election.—Recently elected officers of the Chicago Society of Allergy are Milton M. Nosko, Chicago, president; Abe L. Aaronson, M.D., Chicago, president-elect, and Simon S. Rubin, Gary, Ind., secretary-treasurer.

GREENE

Symposium on Neurological Examination.—The Greene County Medical Society devoted its meeting, December 10, at Roodhouse to a symposium on the importance of the neurological examination. With F. Garm Norbury, M.D., Medical Director of the Norbury Sanatorium, Jacksonville, presiding as moderator, the following spoke: A. M. Paisley, M.D., A. G. Schultz, M.D., and Walter L. Frank, Jr., M.D., all of Jacksonville.

KNOX

One Hundred Years of Medicine.—One hundred years of medicine in Knox County was observed Wednesday November 19, 1952. A special scientific program was presented by the Knox County Medical Society in the Ballroom of the Custer Hotel, Galesburg, Illinois.

The first Knox County Medical Society was established in 1852 with a few members. Present membership of the society is forty-eight. One charter member of the present society, who is also a fifty year club member attended, Ben D. Baird, M. D. of Galesburg, Illinois. Another fifty year club member was present, E. N. Nash, M.D. of Galesburg, Illinois. The Illinois State Medical Society was represented by the Secretary-Treasurer, Harold M. Camp, M.D. of Monmouth, Illinois.

The first speaker at the anniversary event was Gilbert H. Marquardt, M.D., assistant professor of medicine, Northwestern University Medical School, noted for his work in conditions that affect the aged. He discussed "Problems in Geriatric Medicine". Discussion for this presentation was opened by James W. Marshall, M.D., Monmouth, Illinois.

The second speaker was Edwin N. Irons, M.D., clinical assistant professor of medicine (Rush), University of Illinois College of Medicine, who is an authority on the newer drugs, known as antibiotics, such as terramycin, aureomycin and streptomycin. Dr. Irons' subject was "Present Concept of Antibiotics Therapy". Discussion was opened by James C. Redington, M.D., Galesburg, Illinois. A social hour concluded the afternoon session.

The principal speaker at the dinner meeting was Warren H. Cole, M.D., professor and head of the department of surgery at the University of Illinois College of Medicine, Chicago, Illinois, since 1936, who has held various offices in the numerous societies concerned with his specialty, including the presidency of many. Dr. Cole talked on "Intestinal Obstruction". Dr. Cole's presentation was discussed by William Standard, M.D., of Macomb, Illinois.

The program was arranged by the Scientific Service Committee of the Illinois State Medical Society of which Louis R. Limarzi, M.D., associate professor of medicine at the University of Illinois College of Medicine, is Chairman, and Harold M. Camp, M.D., Monmouth, Illinois, Secretary-Treasurer of the Illinois State Medical Society.

Presiding officers at the one hundredth anniversary celebration were Frank M. Huff, M.D., President of the Knox County Medical Society, and Alexander M. Duff, Jr., M.D., Secretary-Treasurer, of Galesburg, Illinois.

Lowell C. Neveln, M.D., Secretary,
Public Relations Committee,
Knox County Medical Society

LA SALLE

Medico-Legal Meeting.—Louis W. Shabat, M.D., Chicago, addressed a joint meeting of the La Salle County Medical and Bar Associations, December 11, at a dinner session in the Ottawa Boat Club. His subject was "Medical Preparation in Personal Injury Law Suits."

MADISON

Society News.—J. H. Ogura, M.D., St. Louis, assistant professor of otolaryngology at Washington University School of Medicine, addressed the Madison County Medical Society at St. John's Methodist Church, Edwardsville, December 4. His subject was "The Nose."

MORGAN

Sanatorium Entertains County Society.—The Morgan County Medical Society was the guest, November 13, of the Norbury Sanatorium in Jacksonville. Dr. Ernest Parsons, assistant professor of clinical psychiatry, Washington University School of Medicine, St. Louis, gave the principal address on "Patients are People."

SANGAMON

Society News.—Charles Newberger, M.D., discussed "Maternal Mortality" before the Sangamon County Medical Society at its dinner meeting in the Elks Club, Springfield, December 4.

WINNEBAGO

Decision on Treatment Center Theme of Meeting.—A special meeting was called by the Winnebago County Medical Society at the Lafayette Hotel, December 12, to consider whether or not the Rockford Chapter of the Illinois Association for Crippled should establish a treatment center in Rockford.

GENERAL

Roy Gibbons and Herold Hunt Honored.—Roy Gibbons, science editor of the Chicago Tribune, and Dr. Herold Hunt, superintendent of Chicago schools, were made honorary fellows of the Institute of Medicine of Chicago, December 2.

Gibbons' certificate, conferred by Walter H. Theobald, M.D., states that he is honored for "rendering conspicuous service by up to the minute press coverage in the field of medicine, allied services, and public health," and adds that "He is the first man in scientific journalism to receive this distinction from the institute."

Dr. Hunt's certificate, conferred by John L. Reichert, M.D., recognizes his "outstanding contributions to the welfare of Chicago."

New Officers of Illinois Chapter A. C. of S.—Robert J. Patton, Springfield, was chosen president of the Illinois State Chapter of the American College of Surgeons at its annual meeting in Peoria, November 1. Other officers are Charles D. Branch, Peoria, vice president; Kent W. Barber, M.D., Quincy, secretary treasurer, and Charles E. Baldree Jr., M.D., Belleville, councilor. Principal speaker at the meeting was Kenneth Schnepp, M.D., on "Electrolyte Balance."

Menus for Sodium Restricted Diet.—"Preparing Meals for the Sodium Restricted Diet" is the title of a 12 page piece of mimeographed material recently made available to physicians by the Diet Therapy Committee of the Illinois Dietetic Association. The collection is not in the main a recipe or another cook book, but, while it does give some recipes, its greatest use will be found in showing persons how to adjust their favorite recipes to the low sodium regimen. It should be used as a supplement to the dietary instructions given by the physician.

Pages are included on such subjects as—general suggestions, menus, foods usually permitted on a low sodium diet; ideas for food selection when meals are "eaten out"; in addition there are suggestions for flavoring various types of dishes when sodium is to be omitted.

The material is intended for use by physicians and dietitians in Illinois to give to the patient, and not to be secured directly by the patient. The price is ten cents a copy (stamps will not be accepted) and may be secured singly or in quantities at that price. Temporarily the mimeographed outline can be secured from the Diet Therapy Committee of the Illinois Dietetic Association by address Miss Mame Dentler, 303 East Chicago Avenue, Chicago 11.

HEALTH DEPARTMENT ACTIVITIES

New Sewerage System for Rockton.—The Illinois State Sanitary Water Board has granted the Village of Rockton, Winnebago county, a permit to construct and maintain a municipal sanitary sewerage system and treatment works, it was announced recently by Clarence W. Klassen, technical secretary of the board.

The system will discharge into the Rock River.

The planned sewerage system will, Klassen stated, "facilitate more practical utilization of the existing public water supply system of the town, will provide for better sanitation and promote the general welfare of the community."

Pneumonia Leading Mortality Cause in Communicable Diseases.—Nine major communicable diseases caused the deaths of 2,710 Illinois residents during the first six months of 1952, according to a report issued by the state department of public health. The same nine diseases were responsible for 2,724 deaths during the first half of 1951.

The leading cause of death among the communicable diseases was pneumonia which brought on 1,377 fatalities in the six-month period. Tuberculosis in all forms was responsible for 909 deaths and pulmonary T.B. was the cause of 823.

Syphilis killed 261 persons; influenza, 80; meningitis, 50; measles, 20; poliomyelitis, 7; whooping cough, 5, and diphtheria, 1.

Pneumonia deaths increased by 17 in the comparative periods. Syphilis caused seven more fatalities. Meningitis deaths rose 25, polio, one; and the single diphtheria death compared to a complete absence of mortality from this illness during the first half of last year.

Deaths from tuberculosis in all forms dropped by 54 and pulmonary T.B. deaths were 72 fewer. Influenza deaths fell three; measles, six, and whooping cough, two.

Third Narcotic Clinic.—Chicago's third State-supported narcotics clinic, located at the Northwestern University Medical Center, has been opened, it was announced by Dr. Roland R. Cross, director of the Illinois Department of Public Health.

This clinic which will provide medical counseling for narcotic addicts and youth in the pre-addiction stage is headed by Dr. Benjamin Boshes.

Other clinics operating in cooperation with the state health department are located at Provident hospital and the University of Illinois medical center.

Reporting on the work of the clinics since the first (Provident) opened last December 1, Dr. G. Howard Gowen, deputy director in charge of the department's narcotic program said that there have been 170 referrals.

Eighty per cent of the persons referred to the clinics have been in the 17 to 28 age bracket and 30 per cent of the total ranged from 17 to 20 years of age.

Male referrals outnumbered females five to one in the first 11 months. Most of these persons were

single or separated from their families.

Other information given by the narcotics patients showed that most of them were in the low or middle-low income group and two-thirds were unskilled laborers. Only 25 per cent had graduated from high school. About 10 per cent had attended college for some time.

Dr. Gowen listed three classes of individuals who had been referred to Provident and the University of Illinois clinics. They are 1. Chronic addicts; 2. Persons who had undergone treatment, and 3. Pre-addicts, such as users of marijuana.

In the case of the chronic addicts, the main task has been persuading them to undergo withdrawal treatment. If this is accomplished the next job is to get the treated persons back to the clinic for counseling and guidance. The main objective of the post-treatment counseling is to help persons accept responsibility and to repress further desire for drugs.

Work with the early addicts consists of study of the person, his family and environment to determine conflicts which have led to use of dope. When the cause or causes are discovered the clinic psychiatrists and social workers try to remove the person from the unhealthy situation or to correct the situation.

Although it is too early to say definitely that the State's program is meeting a high degree of success, Dr. Gowen said, limited experience to date has shown that 82 per cent of the persons treated in the clinics have not returned to use of narcotics.

"How's Your Health" over WGN-TV.—On November 26, the Educational Committee of the Illinois State Medical Society returned to the air over *WGN-TV, Channel 9,* with a repeat telecast with *Richard J. Bennett,* surgeon, Chicago District, U. S. Steel Company, and *Theodore R. Van Dellen,* Medical Editor of the Chicago Tribune. Title of the telecast was "What Is a Rupture?"

After programming for three and one half years with the title "Health Talk," the Educational Committee voted to change the name of the telecast to *"How's Your Health."*

Subsequent programs were:

Robert T. McElvenny, assistant professor of bone and joint surgery, Northwestern University Medical School, December 3, Watch Your Child's Back.

Lawrence Peterson, attending surgeon; *Allen Hrejsa,* assistant attending surgeon, *Irwin Dritz,* anesthetist, *Sanford Franzblau,* internist, *Robert McNerland,* patient, and Registered Nurses *Joan Dean, Fern Yates, Joanne Chambers* and *Ann Marie Janzer,* all of the staff of Illinois Masonic Hospital, in Emergency. Elaborate equipment to simulate a real operating room was provided by *V. Mueller and Company, Ohio Chemical Company, Abbott Laboratories* and *Illinois Masonic Hospital.* So realistic was the effect of this program that even professional persons believed the program to be coming from a hospital.

Edward K. Isaacson, director, outpatient pediatric clinic, Northwestern University Medical School, and Theodore R. Van Dellen, December 17, in "Why Immunize."

Telecasts were not scheduled for Christmas Eve and New Year's Eve.

"Your Doctor Speaks" over FM Station WFJL.—In the radio series "Your Doctor Speaks" over FM *Station WFJL,* the following physicians presented transcribed broadcasts under the auspices of the Educational Committee of Illinois State Medical Society:

Frank M. Quinn, member of the Illinois Academy of General Practice, October 9, on What Preventive Medicine Holds for You.

Warren W. Young, member of the staff, Roseland Community Hospital, October 23, on Diabetes.

Stanley W. Olson, dean, University of Illinois College of Medicine, October 30, When Are we Going to Get More Doctors?

Roland R. Cross, Jr., instructor in urology, Northwestern University Medical School, November 6, The Prostate in Man.

Oscar Sugar, assistant professor of neurological surgery, University of Illinois College of Medicine, November 13, on Stroke.

Joseph T. Gault, attending surgeon, Mount Sinai Hospital, November 20, on Tumors of the Female Breast.

Aldo A. Luisada, director, division of cardiology, Chicago Medical School, November 27, on Rheumatic Fever and Rheumatic Heart Disease.

Donald H. Atlas, associate professor of medicine, Chicago Medical School, December 4, The Pitfalls of Self-Medication.

Frank E. Doyle, member of the staff of St. Anne's Hospital, December 11, on Care of the Aged.

Harry F. Weisberg, clinical chemist, Mount Sinai Medical Research Foundation and Hospital, December 18, The Role of Laboratory Tests in Clinical Medicine.

Lectures Arranged Through the Educational Committee of the Illinois State Medical Society:

Joseph T. O'Neill, Ottawa, McKinley School PTA in Marseilles, November 4, on Emotional Problems in the Early School Child.

Dietrich Klemptner, Chicago, Women's American ORT, Sheridan Chapter, November 19, in Chicago, on Growing Old Gracefully.

Lawrence Breslow, Chicago, November 19, Austin Jewish Community Center Sisterhood, on Emotional Problems of the Adolescent.

Burtis E. Montgomery, Harrisburg, West Frankfort Woman's Club, December 2, in West Frankfort, Growing Old Gracefully.

F. Garm Norbury, Jacksonville, Illinois Welfare Association (Region 6), in Winchester, December 16, on Patients are People.

Paul K. Anthony, Chicago, January 6, Women's American O.R.T., Jeffery Manor Chapter, January 6, on Problems of Parenthood.

Albertine L. Rea, Chicago, Norwegian Women's Club, January 7, in Chicago, on The Best is Yet to Be.

John F. Carey, Joliet, Steger PTA, January 13, in

Steger, on Health of the School Child.

Felix A. Tornabene, Aurora, Young Mothers' Club, January 14, on Latest Developments in Medical Research.

George L. Perkins, Chicago, Washington School PTA in River Forest, January 20, on Common Emotional Disturbances of 4 to 12 Year Olds.

Charles S. Gilbert, Chicago, Berwyn Woman's Civic Club in Berwyn, January 20, on Safe Reducing.

Burton C. Kilbourne, Chicago, Vanderpoel PTA January 23, on An Eye to the Future—in Healthy Children.

Edward L. Jackson, Oak Park, Gage Park Woman's Club in Chicago, January 27, on Superstitions About Health.

Miss Marion Gridley, Chicago, Northwest Branch Auxiliary to the Chicago Medical Society, January 27, on Indians of the United States.

Margarete M. Kunde, Chicago, Catholic Daughters of America in West Chicago, February 3, on Diet, Reducing and Vitamins.

Eugene J. Ranke, Chicago, Woman's Auxiliary to the Chicago Medical Society, February 10, on Nutrition from Cradle to Grave.

Carlos I. Reed, Ph. D., Chicago, Physicians' Fellowship Club Auxiliary, February 13, on Water, Soil and Human Nutrition.

Eugene L. Slotkowski, Chicago, Schubert School PTA in Chicago, February 17, on Understanding the Adolescent.

Lectures Arranged Through the Scientific Service Committee of the Illinois State Medical Society:

Thomas H. Burford, St. Louis, Montgomery and Macoupin County Medical Societies in Litchfield, December 9, on Carcinoma of the Lung.

Myron M. Hipskind, Chicago, Fulton County Medical Society, December 10, in Canton, on Differential Diagnosis of Vertigo (motion picture presentation).

Thomas D. Masters, Springfield, Rock Island Chapter, Illinois Academy of General Practice in Rock Island, December 16, on Medical Management of Thyroid Disturbances.

Harry E. Mock, Jr., Chicago, Lee-Whiteside County Medical Societies in Dixon, December 18, on Prevention and Management of Brain Injuries.

Patrick H. McNulty, Chicago, DeKalb County Medical Society in Sycamore, December 30, on Anuria.

Jerome T. Paul, Chicago, McLean County Medical Society in Bloomington, January 13, on Diagnosis and Treatment of Diabetes Mellitus.

Thomas J. Coogan, Chicago, Lee-Whiteside County Medical Societies at Forest Inn near Sterling, January 15, on Modern Trends in Treatment of Vascular Diseases.

James H. Cross, Chicago, Logan County Medical Society, January 15, in Lincoln, on Lesions of the Esophagus.

Walter J. Reich, Chicago, Stock Yards Branch of the Chicago Medical Society, January 15, on Management of Cervical Erosion.

August F. Daro, Chicago, DeKalb County Medical Society in Sycamore, January 27, on Recent Advances in Obstetrics.

Harvey S. Allen, Chicago, Lee-Whiteside County Medical Societies in Dixon, February 19, on Injuries of the Hand.

Mitchell A. Spellberg, Chicago, Stock Yards Branch to the Chicago Medical Society, February 19, on Diagnosis and Management of Colitis.

Carlo Scuderi, Chicago, DeKalb County Medical Society in DeKalb, February 24, on Treatment of Both Bone Fractures of the Leg.

MARRIAGES

Charles E. Galloway, Evanston, to Dorothy Schmidt, at First Congregational Church in Wilmette, November 29.

DEATHS

WALDO BROWN BAIRD, Mt. Carmel, who graduated at Eclectic Medical College, Cincinnati, in 1910, died October 17, aged 69, of metastatic sarcoma of the cerebrum.

ROBERT WEBSTER BINNEY, Granite City, who graduated at Washington University School of Medicine, St. Louis, in 1897, died October 28, aged 79, of cerebral hemorrhage. He was a member of the U. S. Chapter of Surgeons of Geneva, American Association of Industrial Physicians and Surgeons' Club of the Mayo Clinic.

GEORGE R. BLACKSTONE, retired, Urbana, who graduated at Northwestern University Medical School in 1900, died recently, aged 77.

JOHN W. BLAIR, Homewood, formerly of Harvey, who graduated at Dunham Medical College, Chicago, in 1900, died in November, aged 76.

N. LIONEL BLITZSTEN, Chicago, who graduated at Rush Medical College in 1917, died September 27, aged 59, of chronic myocarditis. He was on the faculty of Northwestern University Medical school for many years, where he was an associate in the department of nervous and mental diseases.

LONDUS B. BRANNON, Manhattan, who graduated at Northwestern University Medical School in 1931, died December 1, aged 51.

STANLEY L. BROWN, Chicago and Hammond, (Indiana), who graduated at Northwestern University in 1909, died December 8, aged 68.

FRANK J. CHMELIK, Joliet, who graduated at Chicago College of Medicine and Surgery in 1916, died December 8, aged 61. He had been penitentiary physician for 25 years and was also physician for the Joliet police and fire board.

ELIAS L. DAVIS, Peoria, who graduated at Barnes Medical College, St. Louis, in 1896, died November 9, aged 84.

AMOS DEFEO, Chicago, who graduated at Chicago College of Medicine and Surgery in 1915, died October 30, aged 62 of coronary occlusion.

MATT ELSEN, Winnebago, who graduated at Northwestern University Medical School in 1917, died recently, aged 65, in Rockford Memorial Hospital. He had practiced medicine in Winnebago for the past 28 years.

WILLIAM E. GUINEA, Chicago, who graduated at Chicago College of Medicine and Surgery in 1916, died November 22, aged 60, in Little Company of Mary Hospital, where he had been a staff member for 15 years.

WILLIAM N. HAMILTON, Odin, who graduated at St. Louis University School of Medicine in 1903, died recently, aged 85.

MORTIMORE C. HAWK, Blue Island, who graduated at University of Pittsburgh School of Medicine in 1896, died September 1, aged 79, of coronary thrombosis.

MARIE SORNA LEVINSON, retired, Chicago, who graduated at the College of Medicine and Surgery, Chicago, in 1908, died November 28, aged 75.

ANTHONY E. MALACHOWSKI, retired, Bensenville, formerly of Chicago, who graduated at Illinois Medical College in 1904, died December 7, aged 79, in Belmont Hospital.

VICTOR A. MCCLANAHAN, Aledo, who graduated at Keokuk Medical College in 1894, died recently, aged 83.

DONION R. MARTIN, Mt. Vernon, who graduated at the Chicago Medical School in 1935, died recently, aged 45.

DAVID LAW MURPHY, Dixon, who graduated at Northwestern University Medical School in 1930, died September 30, aged 50, of coronary occlusion.

STELLA HENRIETTA NAPIERALSKI, Hinsdale, who graduated at Chicago College of Medicine and Surgery in 1916, died in Hinsdale Sanatarium and Hospital, October 23, aged 58, of burns suffered when her clothing caught fire as she was raking leaves in her yard.

MELVIN MAX NEWMAN, Chicago, who graduated at the University of Illinois College of Medicine in 1924, died in South Chicago Hospital, September 6, aged 55, of coronary thrombosis.

PETER PAUL O'CONNOR, Chicago, who graduated at Chicago College of Medicine and Surgery in 1917, died December 11, aged 60, in Columbus Hospital. He was on the surgical staff at Henrotin Hospital for many years.

JOHN J. RENDLEMAN, Cairo, who graduated at the University of Tennessee College of Medicine, Memphis, in 1885, died October 11, aged 89, of hypostatic pneumonia and cerebral thrombosis.

EDWARD H. ROBINSON, retired, Lawrenceville, who graduated at Missouri Medical College in 1880, died November 30, aged 94.

CHARLES A. SIMA, Oak Park, who graduated at the University of Illinois College of Medicine in 1913, died December 9, aged 64. He was on the staff at St. Anthony's Hospital more than 30 years.

JESSE C. SUTHERLAND, Sparta, who graduated at the University College of Medicine, Richmond, (Va.) in 1907, died November 8, aged 71.

WILLIAM CROWELL VAN BENSCHOTEN, Chicago, who graduated at Northwestern University Medical School in 1896, died October 21, aged 82, of bronchopneumonia and Parkinsonism.

COUNCIL MEETING (Continued)

component societies of this requirement, and to tell them the Society cannot accept dues in 1953 for any physicians who have not acquired full citizenship.

The list of candidates for Emeritus and Past Service-Retired membership were approved. All bills as audited by the finance committee were approved and the secretary instructed to pay them. Chairman announced next meetings of the Council, December 14, January 11, March 8, April 26, these being the regularly scheduled meetings before the annual meeting in May. By proper action, the Council adjourned at 3:10 P.M.

Harold M. Camp, M.D.
Secretary

DON'T EAT IT, WALK ON IT

Blackstrap molasses, according to Restaurant Management, has a new use — as an ingredient in a paving material developed for the Marines. The recipe, nowhere to be found in the works of Gaylord Hauser, consists of the "wonder food" plus fuel oil, blended with sand or gravel. This yields material hard enough for military equipment to use during amphibious landings. *J. Am. Dietet A. Oct. 1952.*

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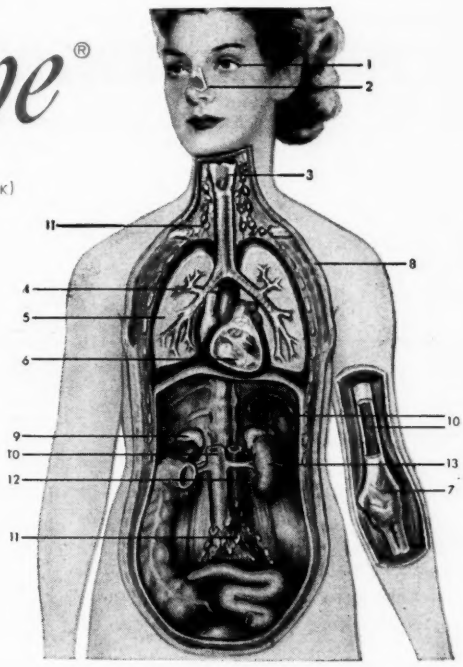

Primary Site of Pathology and Indications

1. EYE—Inflammatory eye disease. **2. NOSE**—Intractable hay fever. **3. LARYNX**—Laryngeal edema (allergic). **4. BRONCHI**—Intractable bronchial asthma. **5. LUNG**—Sarcoidosis. **6. HEART**—Acute rheumatic fever with carditis. **7. BONES AND JOINTS**—Rheumatoid arthritis; Rheumatoid spondylitis; Acute gouty arthritis; Still's Disease; Psoriatic arthritis. **8. SKIN AND CONNECTIVE TISSUE**—Pemphigus; Exfoliative dermatitis; Atopic dermatitis; Disseminated lupus erythematosus; Scleroderma (early); Dermatomyositis; Poison Ivy. **9. ADRENAL GLAND**—Congenital adrenal hyperplasia; Addison's Disease; Adrenalectomy for hypertension, Cushing's Syndrome, and neoplastic diseases. **10. BLOOD, BONE MARROW, AND SPLEEN**—Allergic purpura; Acute leukemia† (lymphocytic or granulocytic); Chronic lymphatic leukemia.† **11. LYMPH NODES**—Lymphosarcoma†; Hodgkin's Disease†. **12. ARTERIES AND CONNECTIVE TISSUE**—Periarteritis nodosa (early). **13. KIDNEY**—Nephrotic Syndrome, without uremia (to induce withdrawal diuresis). **14. VARIOUS TISSUES**—Sarcoidosis; Angioneurotic edema; Drug sensitization; Serum sickness; Waterhouse-Friderichsen Syndrome.

†Transient beneficial effects.

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PHYSICAL MEDICINE ABSTRACTS

EMIL D. W. HAUSER, DEPARTMENT EDITOR

HEATING THE KNEE JOINT

H. M. Whyte and S. R. Reader. In ANNALS OF THE RHEUMATIC DISEASES, 11:1:54, March 1952.

It is generally conceded that radiant heat is less effective than diathermy for heating joints. Whyte and Reader have made some observations on this point in the knee joint in the course of other studies and have presented their methods and results which may be of value to those who are interested in measuring joint temperatures and assessing the effectiveness of treatment.

Three methods of heating were used in the study: long infra-red radiation, short infra-red radiation, and diathermy, the latter proving to be the best method for heating the knee joint. The fact that diathermy caused the joint temperature to rise above the normal temperature of blood is an indication of deep penetration by this form of heat. On the other hand, the delayed and poor response to radiant heat can be interpreted to mean that infra-red radiation, even of the most penetrating type such as that given by a tungsten filament lamp, has no direct effect on the joint. When radiation is applied to the knee the heat is absorbed by the skin and superficial tissues and is carried away by the blood without directly influencing to any appreciable extent the temperature of the underlying joint. However, the absorption of heat and the consequent increase in blood flow lead to gradual warming of the whole leg, as a result of which the temperatures throughout the limb, particularly in the center, approach the temperature of the blood. Therefore, the application of moderate amounts of heat to the whole limb probably is more efficient than applying intense heat restricted to the region of the joint when radiant heat, hot-water bottles, or other nonpenetrating forms of heat are used. The most that can be hoped for with these methods is to raise the joint temperature to 37 degrees C. or slightly more. The most efficient heating would be given by warming the whole limb at the same time as applying diathermy to the knee.

PHYSICAL MEDICINE AND REHABILITATION IN ACUTE MYOCARDIAL INFARCTION

Louis B. Newman, M.E., M.D., Mildred F. Andrews, B.S., P.T., Margaret O. Koblish, B.S., O.T.R., and Lyle A. Baker, M.D., Hines, Ill. In ARCHIVES OF INTERNAL MEDICINE, 89:4:552, April 1952.

This is a report of a program which involves both physical and occupational therapy which was organized and put into effect as a routine part of the management of all patients with acute myocardial infarction. This program has been in effect since June 1948 and the results have been extremely gratifying.

The first week of treatment consists of complete bed rest, with interviews by the rehabilitation staff if the patient's condition permits. The active program begins in the second week,

(*Continued on page* 39)

with the following immediate objectives: (1) To teach the patient both physical and psychological rest. (2) To instill a proper mental attitude in the patient toward his illness and to prevent the development of anxiety neurosis. (3) To return muscle tone and strength in order that the patient may be ready for physical activity. (4) To aid in prevention of peripheral circulatory stasis which is conducive to phlebothrombosis. (5) To help the patient understand his physical limitation and how to control his activities during convalescence and after discharge. The patient is given supervised exercises, including diaphragmatic breathing exercises, which are gradually increased in the third and fourth weeks. Progressive walking is started in the fifth week, and during the sixth week is increased to include stair climbing. Ambulation thus is accomplished with less physiological disturbance and apprehension, and strength and endurance are recovered more rapidly. It also has been noted that the incidence of anxiety neurosis following recovery from acute myocardial infarction is much less.

Since this program was initiated, approximately 300 patients suffering from acute myocardial infarction have been managed accordingly. For the most part, the response and cooperation of the patients to this program have been gratifying. Acceptance has been stressed by Grayson as of great importance in the success of any rehabilitation venture. Among patients suffering from acute myocardial infarction, this factor is rarely lacking. On occasion a patient, because of lack of sufficient insight, may consider the conservative, slowly progressive activity as ridiculous and may resent the close supervision. Rarely, resentment of the patient toward the misfortune of his illness may be so great that it is impossible to create any interest on his part in rehabilitation. In the majority of such cases, however, the program seems to be the most successful means of overcoming this particular mental attitude. Generally the patients welcome and are appreciative of the close attention, encouragement, and progressive nature of the program. It does much to offset the monotony, as well as giving them an objective means of measuring their progress through increasing physical activity.

The rehabilitation program contributes to more satisfactory recovery and adjustment on the part of the patient. Whenever possible, patients who should not return to their former type of occupation are seen by the vocational advisor regarding new employment. If the need arises, a social service worker should evaluate the home situation. Both the physician and the patient will have a much clearer concept of the patient's physical and mental capabilities, resulting in more objective and realistic plans for the future.

RECENT ADVANCES IN PHYSICAL THERAPY APPLIED TO GENERAL PRACTICE

Arthur M. Pruce, M.D. In THE JOURNAL OF THE MEDICAL ASSOCIATION OF GEORGIA, 41:7:305, July 1952.

Recent advances in physical therapy afford a solution to the problem of offering patients adequate office treatment at a reasonable cost during this period of inflated values. Although recent rulings of the Federal Communications Commission has left many with the problem of providing an adequate substitute for short wave diathermy, there are many physical therapy modalities which will cover the therapeutic needs of the patients.

A simple, inexpensive and effective heating unit, the moist heat pack, can be used in the office and also by the patient at home. Pruce no longer considers the diathermy the basic heat unit for general practice. The moist heat pack is particularly effective in muscle spasm associated with acute lumbo-sacral sprains. The painful lumbo-sacral segment is protected against motion by lumbar muscle spasm. Office diathermy releases spasm leaving the part unprotected. Recurrence of spasm is frequently evident by the time the patient reaches his home. A more reasonable procedure would be to institute heat treatment at home. Bed rest with frequent applications of the pack will gradually restore the muscles in spasm to normal length.

There are specialized situations for which the moist heat pack, despite its adaptability, falls short in its effectiveness. The paraffin bath is the treatment of choice for chronic arthritic hands and feet, and it is essentially a home procedure.

Qualified physical therapists are not available

(*Continued on page* 40)

The Treatment of ALCOHOLISM.. A MEDICAL PROBLEM

In addition to private conferences as needed, group re-education is indispensable in leading the patient back toward total abstinence.

The concept of alcoholism as a medical problem, now generally accepted, is basic in the successful control of the "problem drinker."

At The Keeley Institute the therapeutic regimen is formulated on this premise. Specialized care of the individual patient rests in the hands of a highly experienced staff of physicians who supervise every step of the patient's progress.

Aversion treatment is not used, nor is restraint employed. Rather, the patient is aided toward rehabilitation through highly coordinated diet therapy, re-education, exercise and pleasant activities in an environment conducive to wholesome normal living—all under careful medical supervision.

The referring physician is kept informed of the patient's progress and receives a summary of the case upon the patient's dismissal.

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Physical Medicine (Continued)

to meet all the demands for such services. Massage applied by such trained technicians has a sedative and relaxing effect and serves as an ideal preparation for therapeutic exercise. Recently a portable electrical muscle stimulator (Medcolator) has been accepted by the Council on Physical Medicine and Rehabilitation of the American Medical Association that can reproduce certain effects of manual massage and passive exercise. This device will enable the general practitioner to administer such therapy at the bedside, or in the office with routine office help. Pruce has found the device useful in stimulating atrophic muscles at joints that have been damaged by trauma or arthritis, and also in eliciting painless contractions in flaccid paralysis. While this unit has specific properties, the value of manual massage and exercise remains undiminished.

PREPARATION FOR CHILDBIRTH BY PHYSIOTHERAPY

Helen M. Nicholson, M.C.S.P., C.P.A., and George A. Simpson, M.D., C.M., F.R.C.O.G., F.A.C.S. In THE CANADIAN MEDICAL ASSOCIATION JOURNAL, 67:2:145, August 1952.

An approach has been made to the problem of helping civilized woman to meet the difficulty of childbirth through her own understanding and cooperation. The aims underlying this treatment are three: (1) the reduction of fear; (2) the promotion of relaxation; and (3) the maintenance of good body mechanics.

The reduction of fear is brought about by a discussion of an outline of the physiology and mechanics of pregnancy and labor. The most efficient results in reducing the sensations of pain are obtained through mental and physical relaxation. The patient should be attended, during her confinement, by someone conversant with it herself and with the relaxation procedure which she has been taught during her pregnancy. Patients are not told that relaxing will make the process painless, but rather that the contractions will not reach a degree of intensity beyond their tolerance. As a result, those with excellent relaxation are delighted with their success while those less successful are not disappointed. At no time is it suggested that sedation be with-

(*Continued on page* 40)

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held or that anesthesia in the second stage of labor is not the accepted procedure.

The promotion of relaxation is taught with patients lying on a hard surface, upon which it is easier to obtain a more complete understanding of the relaxed state. Deep breathing is tiring and inhibits full relaxation, if prolonged. A feeling of deep relaxation usually takes quite a considerable time to be appreciated but, once achieved, practice should be directed at reaching this condition as soon as possible. The next step includes achieving this relaxation under unfavorable conditions, such as a radio playing too loudly on a distasteful program. The body must also be trained to remain relaxed while the mind is actively occupied in listening to a conversation or to a program, so that visits by doctors and nurses during labor will be less likely to spoil the continuity of the relaxation rhythm. It is important also that relaxation may be achieved in positions other than on the back.

The maintenance of correct muscle balance and of individual control of muscle groups of the abdominal back and pelvic floor muscles is of paramount importance. A patient has little hope of being able to relax and to cooperate in the later stages of labor if the latter has been neglected. A few very simple exercises are all that is required to allow the spine to remain flexible, allow walking with the least difficulty and permit the patient to relax and move to or from any position, even at full term. It cannot be overstressed that the greatest hindrance to correct posture and muscle balance during pregnancy is the wearing of a maternity corset, unless secondary symptoms are deemed by the physician to warrant its prescription.

An analysis of the record of one hundred and ten patients treated by this method shows a reduction in the length of labor and hospital stay. The amount of analgesics required by the patients has not been greatly decreased, although by their own reports, some were given sedation prior to their immediate need or wishes. However, it seems to those of the medical and nursing staff with whom the matter has been discussed that patients practicing relaxation are more controlled, quieter and much more cooperative. This in itself is a definite point in favor of these techniques.

(*Continued on page* 44)

Octin - *for Relief of Smooth Muscle Spasm*

Octin is an antispasmodic with both neurotropic and musculotropic action indicated for the treatment of smooth muscle spasm, particularly in spastic conditions of the genitourinary and gastrointestinal tracts. It acts promptly and the relaxation usually lasts three to five hours.

DOSE: Orally, one tablet (2 grains Octin mucate) every three to five hours.

Intramuscularly, ½ to 1 cc. (1 cc. ampule, 0.1 Gm., Octin HCl.) every three to four hours.

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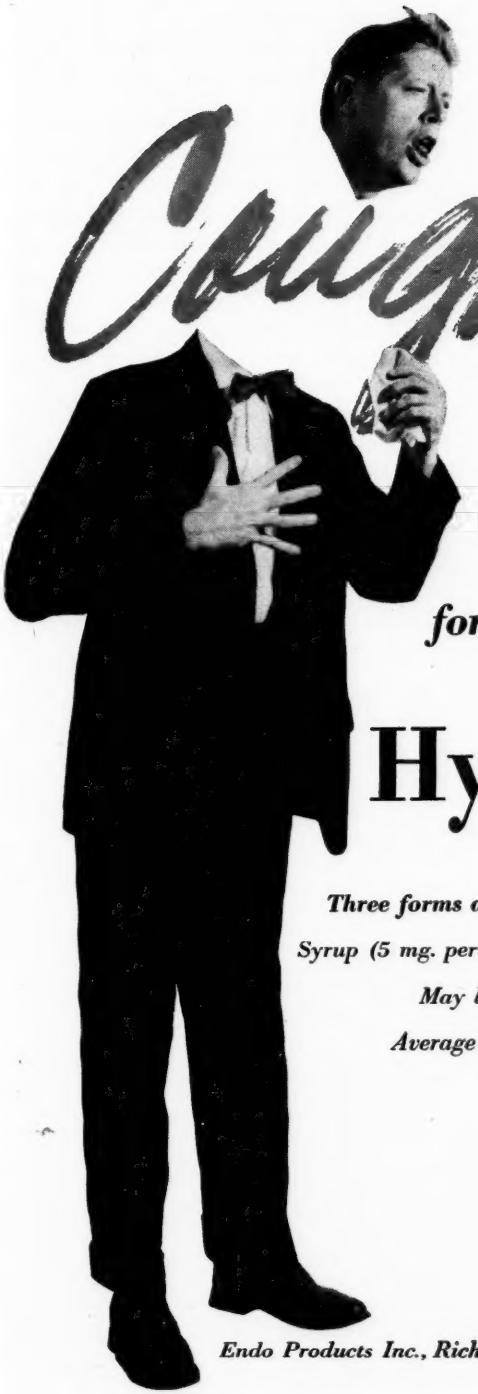

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Physical Medicine (Continued)

Although a short involuntary relaxation and relief may be gained by the patient if she follows the physician's instructions to take short breaths or to scream, she is usually not recipient to the command to relax, having no knowledge of how this may be achieved, unless she has received prior training. Such training is the aim of this program, in which it is attempted to prepare pregnant women beforehand, to interpret and cooperation with the physician's requests. It is regrettable, therefore, that so many physicians do not avail themselves of this successful program and of the services of physical therapists in administering it.

CONVALESCENCE AND REHABILITATION

Murray B. Ferderber, M.D. In THE PENNSYLVANIA MEDICAL JOURNAL, 55:7:669, July 1952.

This report is intended to assist those physicians who live in areas without hospital services or departments of physical medicine. It is a compilation of simple but practical measures devised by surgeons and internists who have used these ideas to hasten the period of convalesence to a successful conclusion.

Simple bed exercises such as quadriceps settings will help to maintain strength in the largest muscle of the body. Ferderber describes a simple device for increasing strength and range of the thigh muscles which can be made from inexpensive materials—clothesline and belting.

Despite any advertised claims, heat is used for one purpose only—the production of hyperemia. Ferderber discusses the uses of heat in many injuries and conditions. Heat is especially useful in the treatment of hand injuries: washing dishes and wringing cloths in hot water will supply the moist heat and exercise so necessary for resolution of such disability. He also discusses the care of patients confined to bed for long periods of time. Disuse atrophy can be lessened by bed exercises which in turn will reduce demineralization of bones in long-standing cases.

(*Continued on page* 46)

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Laboratory Fees in Hospital	5.00	10.00	15.00	20.00
Operating Room in Hospital	10.00	20.00	30.00	40.00
Anesthetic in Hospital	10.00	20.00	30.00	40.00
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Medicines in Hospital	10.00	20.00	30.00	40.00
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Convalescence is associated with protein loss of serious magnitude, yet little is known of the fundamental nature of the loss.[1] Loss of nitrogen cannot be prevented; however, nitrogen balance can be maintained, wound healing enhanced, and convalescence shortened, by a high protein diet.[2]

Otherwise the patient uses his own "available" nitrogen stores to accomplish the healing defect.[3]

The patient "is better off before his nitrogen stores have been wasted than after. Surgeons have long noted that chronically debilitated patients are poor operative risks."[1] Decubitus ulcers heal quickly in heavily protein-fed patients.[4]

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Knox Gelatine is easy to digest, while its supplementary dietary nitrogen will furnish protein without other substances, especially salts of potassium which are retained during convalescence; without excess fat and carbohydrate, which are not needed especially; and without a food volume which may interfere with intake.

1. Howard, J. E. Protein Metabolism During Convalescence After Trauma. Arch. Surg. 50:166, 1945.
2. Co Tui, Minutes of the Conference on Metabolism Aspects of Convalescence Including Bone and Wound Healing. Josiah Macy, Jr. Foundation, Fifth Meeting Oct. 8-9, p. 57, 1943.
3. Whipple, G. H. and Madden, S. C. Hemoglobin, Plasma Protein and Cell Protein: Their Interchange and Construction in Emergencies. Medicine 23:215, 1944.
4. Mulholland, J. H., Co Tui, Wright, A. M., Vinci, V., and Shafiroff, B. Protein Metabolism and Bed Sores. Am. Surg. 118:1015, 1943.

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Physical Medicine (Continued)

Ferderber cautions that the limb-maker possesses neither the professional background nor the training to teach an amputee gait-training. A qualified physical therapist with amputee training can and will prevent improved walking which is undesirable and does not approximate the normal gait.

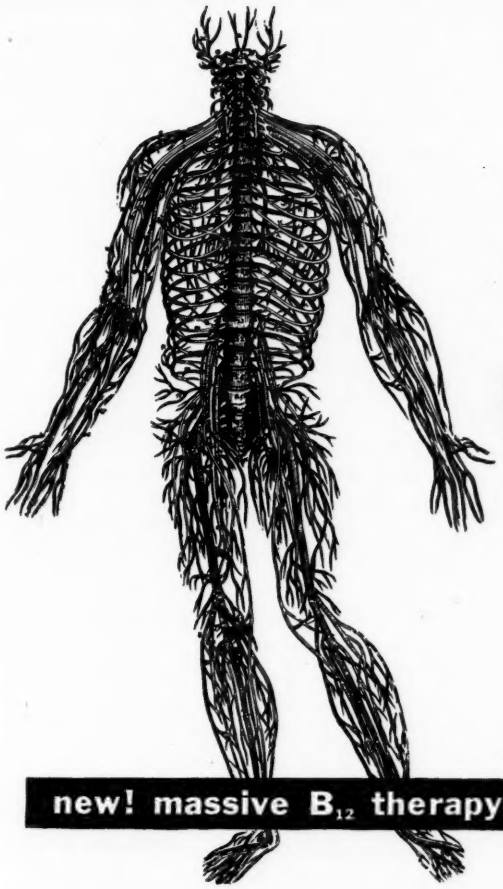
THERAPEUTIC APPLICATION OF ULTRASONIC ENERGY

Fritz Friedland, M.D., John G. Bisgrove, M.D., and Bernard J. Doyle, M.D. In ARCHIVES OF PHYSICAL MEDICINE, 33:8:461, August 1952.

During the period from June 1950 to June 1951, 161 cases (141 patients) were given 1477 ultrasonic treatments. Because of the physical properties of ultrasonics the authors chose for their studies out of a vast variety of indications suggested in the literature such conditions as those in which heat and massage have always been considered beneficial. In order to evaluate the therapeutic results, an attempt was made to answer the following three questions: (1) Is there any damaging effect of ultrasound? (2) Is there any beneficial effect? (3) Is the beneficial effect of ultrasound greater than that of other therapeutic agents? Since no significant detrimental effects were observed in 1477 applications, the authors believe that the answer to question (1) is a confirmation of the statements in the literature, namely, that ultrasonic therapy can be considered safe therapy. In order to answer questions (2) and (3), the observations made on their patient material were compared with those made on a similar group of control cases treated with conventional physical therapy. The findings suggest that ultrasonics has a pain relieving effect which apparently is equal to the analgesic effect of other physical agents such as infra-red and diathermy. Individual cases were discussed to illustrate these results. No claim could be made of any other curative effect, and ultrasonic therapy was considered local therapy which cannot be expected to influence the etiological background of the conditions treated.

The chief advantage of ultrasonic therapy consists in its relatively easy application and the short duration (4-10 minutes) of the treatments. Experience has shown that often a

(*Continued on page* 48)



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Physical Medicine (Continued)

change from one physical agent to another will be followed by improvement in cases which previously failed to respond to therapy. For this reason, ultrasonics is a welcome new therapeutic modality. However, we believe that many years of combined efforts in physical medicine will be necessary to come to a final conclusion on the therapeutic possibilities of ultrasonics in medicine.

REHABILITATION OF PERIPHERAL NERVE INJURIES

John H. Aldes, M.D., Arthur C. Bockstahler, Lionel Lieberman. In ANNALS OF WESTERN MEDICINE AND SURGERY, 6:7:418, July 1952.

Rehabilitation of peripheral nerve injuries begins at the time of admission for primary treatment. The length of delay in starting rehabilitation is in direct proportion to complications which arise. Contractures, joint stiffness, and resulting deformities are greatly minimized when treatment is begun early.

The rehabilitation team, which includes the patient, must have a thorough knowledge of the program, and the expected goal of the patient's vocational and social activity.

The scope of the treatment is limited by several factors; among these is the nature of the lesion in the nerve which has a fundamental influence upon the degree of recovery.

Prevention of contractures of muscles and soft tissues and secondary changes in joints must be a goal in the rehabilitation program.

The final success of treatment is in the hands of the patient, who must realize that without regular daily use of the affected limb in his vocational and social activity, best functional results cannot be obtained.

Because the control of tuberculosis is a universal problem, found in all areas everywhere, the program must be shared by all agencies working together, official and voluntary. This means that the disease must be found, isolated, and treated and that efforts and methods for control must transcend the boundaries of a single state, local area, state or nation. The cost of fighting tuberculosis is very great and the problems it produces are many and complex. . . Efforts to control it and eventually to eradicate it require most intensive work on local, state, national and even international levels of action. Mabel Baird, Conn. State Med. J. May, 1952.

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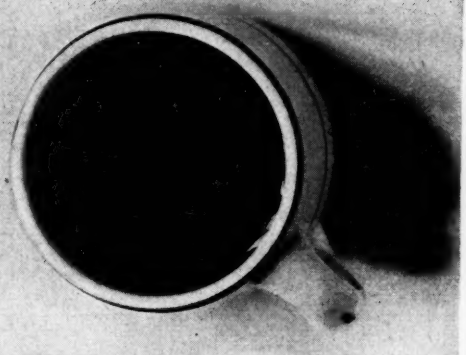

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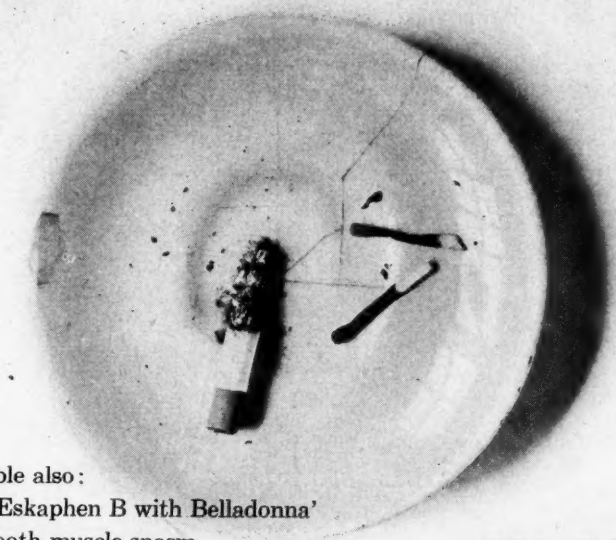

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BOOK REVIEWS

THE TREATMENT OF INJURIES TO THE NERVOUS SYSTEM. By Donald Munro, M. D. F. A. C. S. Surgeon in chief, Dept. of Neurosurgery. The Boston City Hospital; Associate Professor of Neurosurgery, Boston University School of Medicine; Assistant Professor of Neurosurgery, Harvard University Medical School. Published by W. B. Saunders Company, Philadelphia, London. 1952 Price $7.50.

This book is not large, only 284 pages and is written by an eminent neurosurgeon for the use primarily of the general surgeon and the general practitioner. Cognizance is taken of the "obvious fact that the bulk of neurologic surgery lies in the field of trauma and not in the field of tumors."

More than one half of the volume deals with the general consideration of trauma to the nervous system and its many and wide complications. And, this is considered in minute and specific detail as to the correct therapy for each condition that may be present. For instance the portion dealing with spinal puncture is very lucid in its explanation of the result of its use. The dangers of puncture, following trauma, or contra-indications are vividly set forth, and in terms easily understood and well emphasized. Again, the technique for care of body functions is minutely described and made extremely interesting by depicting the physiological reasons for such care. Practically all questions of care, and the alerting of the medical attendant as to progress of the complication that may be present or developing is set forth. And are told with very direct statement and no verbosity. The consideration of the respiratory system as affected primarily by injury of the brain or cord, and by concurrent complications is most complete. Reasons for suction in respiratory complications are given and at the same time is established how one is to establish relief by treatment of the original injury and very shortly thereby eliminate the need for such mechanical aids. Many other symptomatic therapies are explained and means for their discontinuance outlined.

The second half of the volume deals with treatment of other specific portions of the nervous systems, such as the cranial nerves, injuries to spinal roots, injuries to the peripheral nervous system, injuries to the autonomic nervous system, etc.

The effect of anesthesia on the central nervous system has adequate space.

Emergency surgery, applicable to all possible types of injuries of the nervous system is detailed. The indications, the contra-indications and the definite types of surgery are explained.

"Rehabilitation" receives consideration and the actual practical procedures are portrayed. As elsewhere all through this book, the text is not cluttered up with this and that method that may have been promoted by various writers, even well known surgeons, but that method which has proven efficient and withal practical is laid down and the wherefore made plain.

The book is very readable, and surprisingly interesting. It is very adaptable as an immediate reference because of its extensive table of content and its index.

A TEXTBOOK OF ORTHOPEDICS with a Section on Neurology in Orthopedics; by M. Beckett Howorth, M.D., Clinical Professor of Orthopedic Surgery, New York University Post-Graduate Medical School. In association with: Fritz J. Cramer, M.D., Donovan J. McCune, M.D., A. Wilbur Duryee, M.D., J. William Littler, M.D., Walter A. Thompson, M.D. 1110 pages with 463 figures. Philadelphia and London: W. B. Saunders Company, 1952. Price $16.00.

Doctor Howorth, from his vast experience in the practice and teaching of orthopedics, has produced a

(*Continued on page* 54)

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Dehydrocholic acid	Hydrocholeretic	Stimulates secretion of fluid bile by the liver	+++	Utilizes copious amounts of free-flowing bile – adequate in absence of spasm of sphincter of Oddi
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BOOK REVIEWS (Continued)

unique textbook on the grand scale of a keen scholar.

His introductory chapter gives a brief but comprehensive history of orthopedics and the pioneers who founded the basic principles upon which this dynamic specialty has been built. However, in addition each chapter incorporates a short history of the special topic under discussion.

Doctor Howorth has not compiled a handbook of orthopedic technics but has presented a study of the diseases and abnormalities of the neuro-muscular system on a broad biological foundation with a consideration of the patient as a dynamic whole as well as of the local condition.

The etiological bases of orthopedic abnormalities is thoroughly explored when known and stimulating to further study and investigation. His anatomic approach is dynamic, from the skin inward using the living subject as the model for demonstrating the anatomic features which can be seen and felt from the surface-in motion as well as at rest.

Posture is considered as the body motion, dynamic posture and not as static posture. This is of prime consideration in orthopedics.

Special attention is given to disorders of the spine, hand, knee and foot. The special chapter on the diseases of the nervous system which effect the neuro-muscular systems was prepared by Doctor Fritz Cramer.

J.W.P.

PHYSICIAN'S HANDBOOK by Marcus A. Krupp, M.D. Assistant Clinical Professor of Medicine, Stanford University School of Medicine, Director, Palo Alto Medical Research Foundation, Palo Alto. Norman J. Sweet, M.D., Assistant Professor of Medicine, University of California School of Medicine, San Francisco. Ernest Jawetz, Ph.D., M.D., Associate Professor of Bacteriology and Lecturer in Medicine and Pediatrics, University of California School of Medicine, San Francisco. Charles D. Armstrong, M.D., Clinical Instructor in Medicine, Stanford University School of Medicine. Seventh Edition. Lange Medical Publications, University Medical Publishers, Post Office Box 1215, Los Altos, California.

The 7th Edition of this useful handbook presents many changes and improvements. To those who are not familiar with this book, it is designed to render quickly factual data, laboratory procedures and clinical aids repeatedly used in all branches of medicine.

The new edition combines pithy, dogmatic discussions in each of its thirty chapters with charts, diagrams and listings of specific facts.

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This book will prove invaluable for every student and practicing physician.

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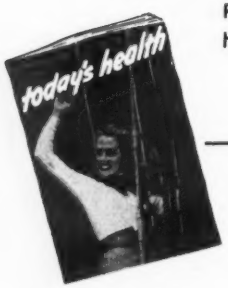

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BOOKS RECEIVED

The following books have been received for reviewing, and are herewith acknowledged. This listing should be considered as a sufficient return for the courtesy of the sender. Books that appear to be of unusual interest will be reviewed as space permits each month. Readers desiring additional information relative to books listed, may write the Editor who will gladly furnish same promptly.

OPERATING ROOM TECHNIC: By St. Mary's Hospital, Rochester, Minnesota. *New, 4th Edition.* 345 pages with 219 figures. Philadelphia and London: W. B. Saunders Company, *1952. Price $6.50.*

EMERGENCIES IN MEDICAL PRACTICE. Edited by C. Allan Birch, M. D., F. R. C. P., Physician, Chase Farm Hospital, Enfield. 143 illustrations, 15 in colour. *Third Edition.* E. & S. Livingstone Ltd., Edinburgh and London, 1952. Price $7.00.

SIDE EFFECTS OF DRUGS. By L. Meyler, Consulting Physician at Groningen (Netherlands) Translated by Ph. Vuijsje and W. Mulhall Corbet, Amsterdam. Elsevier Publishing Company, Amsterdam, Houston, London, New York. Price $5.50.

THE PRINCIPLES AND PRACTICE OF MEDICINE, A Textbook for Students and Doctors. By L. S. P. Davidson, B. A. Cantab, M. D., F. R. C. P. Ed., F. R. C. P. Lond. M. D., Oslo, Physician to H. M. the Queen in Scotland, Professor of Medicine and Clinical Medicine, University of Edinburgh, Physician, Royal Infirmary, Edinburgh, and The Staff of the Department of Medicine and Associated Clinical Units. E. & S., Livingstone Ltd., Edinburgh & London. Price $6.75.

DISEASES OF THE SKIN, A Manual for Students and Practitioners. First compiled by the late Robert W. MacKenna, M. A., M. D., Ch. B. (Edin.) Fifth Edition by Robert M. B. MacKenna, M. A., M. D., (Camb.), F. R. C. P., London. With a chapter concerning radiology by I. G. Williams, F. R. C. S. (Eng.), D. M. R. E. (Camb.), F. F. R. (Gt. B.) Bailliere, Tindall and Cox, 7 and 8, Henrietta Street, Covent Garden, W. C. 2. $8.00.

RHEUMATIC DISEASES, Diagnosis and Treatment. By Eugene F. Traut, M. D., F. A. C. P. 192 illustrations. The C. V. Mosby Company. $20.00.

TEXTBOOK OF SURGERY. Edited by H. F. Moseley, M. A., D. M., M. Ch. (Oxon), F. A. C. S., F. R. C. S. (Eng.) F. R. C. S. (C) With foreword by G. Gavin Miller, M. D., C. M., M. Sc., F. R. C. S. (C), F. A. C. S. 460 text illustrations and 46 color plates. The C. V. Mosby Company, St. Louis. $15.00.

ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, Volume 55, Art. 4, pages 543-742. "Biology of the Testes" by Warren O. Nelson and other outstanding investigators. 200 pages, illustrated. Price $3.75.

ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, Volume 56, Art. 1, pages 1-139. "Oral Fat Emulsions". By Frederick J. Stare and other leading investigators. 140 pages illustrated. $3.00.

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Tuberculosis is notorious for the difficulty of detecting it in its early stages. By the time it is discovered, the disease usually has been transmitted to others. In view of this fact, no method of treatment will solve the TB problem in short order, although improved methods should help hasten the far-off day of eradication of tuberculosis. A good vaccine, superior to BCG — the one most widely used at present — would have greater potentialities for rapid control of tuberculosis than any method of treatment. There is no simple solution to the tuberculosis problem. The disease, because of its infectiousness, its present prevalence, its symptomless onset, its long duration, its tendency to recur even though once arrested, is one of the most complex and costly public health problems in the United States. James E. Perkins, M.D., Annual Report of the NTA, Apr. 1, 1951 to March 31, 1952.

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Although the daily allowance of protein recommended for human beings has been established for some time,[1] only very recently has a recommended daily intake of individual essential amino acids been proposed.[2] These new criteria now give a more accurate means for nutritionally evaluating the protein contribution of meat than was possible just on the basis of the gross amount of protein meat provides.

The table which follows gives the proportions of the recommended daily intake of individual essential amino acids provided by six ounces of cooked meat, the approximate average per capita daily consumption in the American diet. Note that though furnishing about 52 per cent of the daily protein allowance for a normal adult male, six ounces of meat supplies more than the recommended daily intake for a majority of the essential amino acids and a goodly proportion of the recommended intake of the remainder.

Percentages of Recommended Daily Intake of Eight Essential Amino Acids and of Protein Contributed by 6 Oz. of Cooked Meat*

Essential Amino Acids	Beef[3]	Lamb[4]	Pork[4]
L-Isoleucine	141	121	127
L-Leucine	150	120	125
L-Lysine	202	163	172
L-Methionine	42	34	40
L-Phenylalanine	70	63	70
L-Threonine	160	169	183
L-Tryptophan	90	90	100
L-Valine	136	107	113
Protein	56	49	51

*In the calculations, averages of the percentages of protein in six different cuts of each type of cooked meat were used, as were averages of the percentages of the amino acids in the protein of the respective cuts.

Every kind and cut of meat is not only an excellent source of the essential amino acids but also of the nonessential amino acids, the B group of vitamins, iron, and other essential minerals. Morever, meat is rapidly and almost completely digested, has a stimulating influence upon appetite and digestion, and gives a gratifying sense of satiety. All these nutritional and physiologic advantages of meat fully justify its prominent place in normal diets of persons of all ages and in many special diets.

REFERENCES

1. Recommended Dietary Allowances, National Research Council, Reprint and Circular Series, No. 129, Washington, D. C., 1948.
2. Rose, W. C.: Half-Century of Amino Acid Investigations, Chem. and Eng. News *30*:2385 (June 9) 1952.
3. Greenwood, D. A.; Kraybill, H. R., and Schweigert, B. S.: Amino Acid Composition of Fresh and Cooked Beef Cuts, J. Biol. Chem. *193*:23 (Nov.) 1951.
4. Schweigert, B. S.; Guthneck, B. T.; Kraybill, H. R., and Greenwood, D. A.: The Amino Acid Composition of Pork and Lamb Cuts, J. Biol. Chem. *180*:1077 (Oct.) 1949.

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A MEDICAL PROJECT

The Commission (on health needs) has one major objective, the directive reads. "During this crucial period in our country's history, it will make a critical study of our total health requirements, both immediate and long term, and will recommend courses of action to meet these needs. The Commission is authorized and directed to inquire into and study the following:

(a) The current and prospective supply of physicians, dentists, nurses, hospital administrators, and allied professional workers; the adequacy of this supply in terms of the present demands for service; and the ability of educational institutions and other training facilities to provide such additional trained persons as may be required to meet prospective requirements.

(b) The present ability of local public health units to meet demands imposed by civil defense requirements and by the need of the general public during this mobilization period.

(c) The problems created by the shift of thousands of workers to defense production areas requiring the relocation of doctors and other professional personnel and the establishment of additional facilities to meet health needs.

(d) The degree to which existing and planned medical facilities, such as hospitals and clinics, meet present and prospective needs for such facilities.

(e) Current research activities in the field of health and the programs needed to keep pace with the new developments.

(f) The effect upon the continued maintenance of a desirable standard of civilian health of the actions taken to meet the long range requirements of military, civil defense, veterans' and other public service programs for medical personnel and facilities.

(g) The adequacy of private and public programs designed to provide methods of financing medical care.

(h) The extent of federal, state, and local government services in the health field, and the desirable level of expenditures for such purposes taking into consideration other financial obligations of government and the expenditures for health purposes from private sources." *Paul B. Magnuson, Too Big A Job For One Year. Maryland M.J. Sept., 1952.*

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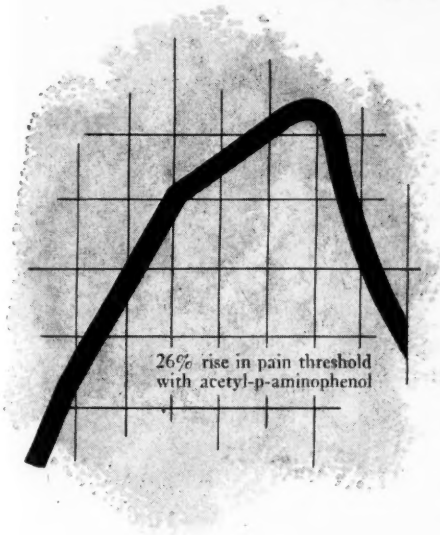

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TREATMENT OF MIGRAINE

In dealing with the tension element in these migraine patients, the most logical solution is to remove the cause of the tension. However, this is often easier said than done because in most cases the tension factor ties in with the patient's occupation, home life, age, or other factors which are not too easily changed in any complete form, although some minor adjustments can be made in most cases. Another method by which the tension factor can be combined is by a mild sedative. The ergotamine tartrate and caffeine combination has proved effective in relieving the headache phase of this problem. The addition of bellafoline to Cafergot (ergotamine tartrate and caffeine) seems to cut down the gastric side effects in some cases. Ergotamine tartrate is a sympathetic sedative and caffeine is a central stimulant. Bellafoline acts as a parasympathetic inhibitor, relieving smooth muscle spasm and controlling hypersecretion. Bellafoline has been found to be less toxic than similar drugs used at the same dosage level. *Robert E. Ryan, M.D. Headache. J. Missouri M.A. Nov. 1952.*

A recent British writer designates tuberculosis as "a disease which has no frontiers." Quarantine cannot be used against it as is possible in foci of plague, cholera or yellow fever. Segregation in sanatoria is our best substitute. But even this has its drawbacks. First there are not enough beds, second discharge against advice is still current, releasing infectious cases again into circulation. Kendall Emerson, M.D., Conn. State Med. J., May, 1952.

HORMONES IN MALIGNANCIES

Isolated cases of malignant tumors, other than those originating in the breast and prostate gland, have been known to respond to hormonal therapy. Practically all of the hormones have been used experimentally in the treatment of cancers. The newest addition to the available hormones in cortisone. Cortisone and ACTH have been used in all kinds of malignant diseases, and experimental studies have been carried out to determine whether increased adrenal cortical function would affect the rate of growth of neoplastic tissue in man. It has been shown that marked temporary regression of lymphoid tumor masses occurs in patients with chronic lymphatic leukemia, lymphosarcoma, acute lymphocytic leukemia, and plasma myeloma during the administration of ACTH and cortisone. In no patient has a complete remission of disease been obtained with the use of these hormones. Metabolic studies of patients with lymphoid tissue or lymphoid tumors have demonstrated a marked destruction of lymphoid tumor tissue and of normal tissues which occurs during the administration of ACTH and cortisone. In some cases, tumor growth actually seems to be augmented in spite of the lessening of induration and edema in surrounding tissue. The recommendation has been made that ACTH and cortisone should be avoided in the presence of malignancy. As of today, these last two agents, cortisone and ACTH, must be considered experimental and uncertain agents and should be employed as a last resort if at all. *Arthur G. James, M.D. Hormonal Treatment In Malignancy. Ohio M.J. Sept. 1952.*

Even in a community with plenty of tuberculosis beds it can hardly be expected that every patient with chronic tuberculosis and positive sputum be hospitalized indefinitely. For example, the intelligent and relatively asymptomatic elderly patient, unsuitable for additional therapy other than rest, retired on a pension and living in a home without children, can remain at home without excessive danger to himself or to others. The irresponsible bar fly, who finally persuades the tavern owner to let him wait on table or work in the kitchen to help pay for his drinks, clearly needs continued institutionalization of some type. Even where tuberculosis beds are limited, and when there is little to offer therapeutically, it is justifiable to use every reasonable means to confine such a patient to a sanatorium or hospital indefinitely. Committee on Therapy, American Trudeau Society, The American Review of Tuberculosis, May, 1952.

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